

Columbia University Bulletin

School of
Dental
and
Oral Surgery

1970-1971

Series

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Columbia University in the City of New York

School of
Dental
and
Oral Surgery
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The Faculty of Dental and Oral Surgery

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Edward V. Zegarelli, D.D.S., M.S. *Edwin S. Robinson Professor of Dentistry*

COMMITTEES

ADMISSIONS (UNDERGRADUATE)	Professors Cuttita (<i>chairman</i>); Anderson, Bartelstone, Miller, Nahoum, and Naidorf; Dean Moss (<i>ex officio</i>)
ADMISSIONS (DENTAL HYGIENE)	Professors Cuttita (<i>chairman</i>) and McLean; Miss Wehrle; Dean Moss (<i>ex officio</i>)
ADMISSIONS (POSTGRADUATE)	Professors Gottsegen (<i>chairman</i>); Bartelstone, Cuttita, DiSalvo, Friedrich, Leavitt, Lucca, Rosenstein, and Zegarelli; Dean Moss (<i>ex officio</i>)
EXECUTIVE	Dean Moss (<i>chairman</i>); Professors Bartelstone, Cain, DiSalvo, Friedrich, Gottsegen, Horowitz, Leavitt, Lucca, McLean, Mandel, Rosenstein, and Zegarelli; Assistant Dean O'Grady
INSTRUCTION	Professors Mandel (<i>chairman</i>); Bartelstone, Cain, Dempsey, DiSalvo, Friedrich, Gottsegen, Horowitz, Kahn, King, Leavitt, Lucca, Noback, Nocenti, Rose, Rosenstein, Salentijn, Smith, and Zegarelli; Dean Moss (<i>ex officio</i>)
FIRST-YEAR CLASS	Professors Smith (<i>chairman</i>); Bartelstone, Kessler, King, Noback, Nocenti, and Salentijn; Assistant Dean O'Grady; Dean Moss (<i>ex officio</i>)
SECOND-YEAR CLASS	Professors Cain (<i>chairman</i>); Bartelstone, Blake, Budowsky, Caronia, Friedrich, Gottsegen, Kahn, Kessler, King, Mandel, and Salentijn; Assistant Dean O'Grady; Dean Moss (<i>ex officio</i>)
THIRD-YEAR CLASS	Professors Lucca (<i>chairman</i>); Applewhite, Bartelstone, Cain, Friedrich, Nahoum, Schwartz, and Zegarelli; Assistant Dean O'Grady; Dean Moss (<i>ex officio</i>)
FOURTH-YEAR CLASS	Professors Rosenstein (<i>chairman</i>); Bartelstone, Cain, DiSalvo, Friedrich, Johnson, Lucca, and Zegarelli; Assistant Dean O'Grady; Dean Moss (<i>ex officio</i>)
DENTAL HYGIENE	Professors McLean (<i>chairman</i>); Applewhite, Bartelstone, Cuttita, DiSalvo, Uccellani, and Zegarelli; Miss Wehrle; Dean Moss (<i>ex officio</i>)
POSTGRADUATE	Professors Gottsegen (<i>chairman</i>); Bartelstone, Cuttita, DiSalvo, Friedrich, Leavitt, Lucca, Person, Rosenstein, and Zegarelli; Assistant Dean O'Grady; Dean Moss (<i>ex officio</i>)
INSTRUMENT	Professors Uccellani (<i>chairman</i>); Lucca, Nahoum, Portway, and Rosenstein; Mr. McGrath; Assistant Dean O'Grady.
TEACHING	Professors Bartelstone (<i>chairman</i>); Cain, DiSalvo, Horowitz, and Lucca; Dean Moss (<i>ex officio</i>)

IN-SERVICE TRAINING	Professors Horowitz (<i>chairman</i>); Bartelstone, Cain, Friedrich, Gottsegen, Lucca, Rosenstein, and Zegarelli
CONTINUING EDUCATION	Professors Gottsegen (<i>chairman</i>); Di Salvo, Lucca, Mandel, Leavitt, Friedrich, and Zegarelli; Dean Moss
SCHEDULING	Professors Cain (<i>chairman</i>); Friedrich and Smith

DELEGATES TO THE UNIVERSITY COUNCIL

Dean Moss; Professors Cuttita and Di Salvo

ADMINISTRATIVE STAFF

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Eileen H. Daly. *Assistant to the Registrar of the University*

Kathrine L. Brown. *Administrative Assistant*

Gertrude Levin. *Executive Secretary*

Michael J. McGrath. *Manager of Dental Stores*

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Houghton Holliday. *Professor Emeritus of Dentistry*

Carl R. Oman. *Professor Emeritus of Dentistry*

Frances A. Stoll. *Professor Emeritus of Dental Hygiene*

Objectives of the School

The School of Dental and Oral Surgery of Columbia University can trace its origins to the year 1852, when the New York State Legislature chartered the New York College of Dental Surgery. The College became part of Columbia University in 1916 when it was recognized that dentistry is an integral part of the health sciences and that dental education is a true university discipline. The program of the School was established on this basis. Many departments of the University contribute to and collaborate on the education of the dental student, thereby assuring him a broad foundation for sound professional development. As the guiding educational policy of Columbia University is a constant pursuit of excellence, the primary goal of the School of Dental and Oral Surgery is the preparation of dentists who will fulfill their obligations to the individual, to society, and to the profession. The dental education policy at Columbia has in the past provided leadership in the maturation of dentistry in the United States. Two examples of such leadership are (1) the establishment at Columbia University in 1920 of the first organization devoted exclusively to research in dentistry, and (2) Professor William J. Geis' preparation of a major critique of dental education in the United States in 1926 which resulted in the acceptance by dental schools throughout the country of the basic policies and objectives developed at Columbia.

The University, realizing the need for even greater emphasis on the prevention of dental disease, is again revising the dental curriculum. The new curriculum is designed to increase the student's appreciation of the conceptual basis of dentistry. Adequate preparation for dentistry demands an understanding of broad biological principles integrated with the continually evolving body of scientific information in clinical dentistry and basic dental research. Building on this base, the student is exposed to the full spectrum of dental problems as a directed observer, and is then introduced to those surgical and manipulative procedures and methods of diagnosis and prevention which he must learn to perform with a high degree of competence. Emphasis is on the close relationship between systemic and oral health and disease, on systemic aberrations that affect the oral structures, on diseases of the mouth which may affect other organ systems, and on dental health as an essential to total health.

Clinical training is broad in scope. It is designed to produce competence in the recognition of oral disease and disorder, to stress the essential role of prevention in the control of oral disease, to establish the concept of maintaining the oral structures in optimal health, and to develop skill in planning and execution of treatment.

It is necessary that the dental curriculum be considered only the initial framework for the student's lifetime participation in dental science and art. To this end, the curriculum must cultivate in the student those habits of independent thought and scholarship that encourage the continual evaluation of new knowledge. Although learning plays a vital role in the student's life, his future development and attainment can be assured most effectively by fostering a spirit of

inquiry. Accordingly, there is constant application of the scientific method, and both undergraduate and postgraduate students are encouraged to participate in research.

Because the population is rapidly increasing, knowledge of the processes of human growth and development and of prevention of disease and abnormality must be amplified. In medicine, prevention of disease has resulted in extensive reduction in infant and child mortality and in a marked increase in the life span of the individual. In dentistry, prevention of dental and oral disease and disorder must be effected in childhood to enable our youth to reach adulthood with complete, healthy dentitions and socially acceptable speech and expression. The increased life span presents many new physiological, pathological, and psychological problems which are peculiar to the aged and are open to investigation. In addition to undergraduate education, programs in graduate education and research are essential if we are to meet these challenges to dentistry. The School of Dental and Oral Surgery regards high standards in both graduate education and research as prime objectives which follow directly from its objectives in undergraduate education.

Foresight on the part of the founders of the School of Dental and Oral Surgery has provided for the education of auxiliary personnel to augment dental health services. The program of Courses for Dental Hygienists was established in the same year that the School became part of the University. A formal dental auxiliary utilization program is functioning at the School. It is designed to train auxiliary personnel and dental students in the efficient use of auxiliaries. This program also explores new opportunities for the use of auxiliary personnel in an attempt to provide additional services to meet the expanding dental health needs of a growing population.

The University has realized that to accomplish these objectives requires the selection of students with superior abilities and academic qualifications, acquisition and maintenance of an excellent staff, and constant pursuit of knowledge through an active and diversified research program. Conscious of these needs, the School selects its students with care and maintains small classes, with a favorable ratio of staff to students. This permits individual instruction and a stimulating relationship between student and instructor. The School has, through the years, had a distinguished staff which has demonstrated accomplishment in education, research, and professional leadership. A number of significant additions to the staff were made during 1969 and 1970. The renovation of clinical facilities was completed in 1969. Over the next four years there is to be a further expansion in full-time staff and planning for an entirely new physical facility on the Medical Center campus. The new curriculum, the expanded staff, and the new building assure the continued leadership of the University in dental education and research and increase its ability to prepare students to meet the expanding professional responsibilities of dentistry.

► THE PROGRAM OF STUDY

September 1969 marked the inauguration of an exciting new curriculum at the School. All of the basic science courses are being offered to both dental and

medical students in the form of a "core" program. During the first year the dental student takes all the basic science subjects except pharmacology (second year, first trimester). Also in the first year the dental student is required to take three new courses (1) *Introduction to Dentistry, 100*, in which he is exposed to the nature of dentistry and its significance, the means of delivery of dental care, and the kinds of preventive and treatment services which modern dentistry provides; (2) an interdisciplinary course in human behavior which deals with the psychological aspects of patient care; and (3) a series of correlation clinics consisting of lectures and demonstrations designed to integrate medical and dental clinical subjects with the basic sciences.

When the new curriculum is fully developed, the second year is to be essentially a "core" dental science year, providing the conceptual basis for the application of modern methods in the recognition, prevention, and treatment of dental disorders. Clinical observation, small group teaching, and frequent seminars are to provide the second-year student with a comprehensive view of dentistry. In 1970 the new program is available to the second-year class which includes an integrated course in dentistry (recognition, prevention, concepts of therapy, instrumentation, and clinical observations) as well as a course in psychosocial aspects of dentistry.

In the new curriculum, the third year is to be primarily clinical, with training in all phases of dentistry. Emphasis is to be on correlation of the various dental disciplines with each other and with the basic sciences. Prevention and comprehensive treatment are to be stressed while technical laboratory procedures are to be limited. Third-year students are to function as student preceptors for second-year students and conduct or participate in seminars on clinical subjects with second- and fourth-year students and staff. In 1970-1971, as many aspects of this program as possible are to be introduced to the present third-year class.

During the fourth year under the new curriculum, the opportunity to choose electives in special areas of dentistry is to be made available, and over the next few years an increasing number of electives are to be designed and offered. In order to increase their ability to view clinical cases in a comprehensive manner, fourth-year students are to spend time as student preceptors in the clinic and in seminars held in conjunction with underclassmen and the staff.

Because of the constantly expanding body of knowledge in basic and dental sciences and the need for adequate clinic time, it is anticipated that two summer sessions are to be required: (1) between the second and third years (starting in 1971); (2) between the third and fourth years (now in effect). These sessions are to be held during June and July for approximately eight to nine weeks.

Throughout the entire course an effort is made to interrelate the different phases of dental learning by means of "correlative" and "combined" clinics in which the various departments and divisions cooperate in the discussion and demonstration of the same and related problems and thus treat the study of dentistry as a unit rather than a series of isolated branches of learning. At the same time an attempt is made to individualize instruction and to place responsibility as far as practicable upon the student for his own training. This is accomplished by the division of classes into small sections, by conferences, and by the comprehensive case method of instruction.

The student's voluntary participation in research projects of his own choosing and in programs under the guidance of the faculty is earnestly encouraged. Members of the William Jarvie Society for Dental Research, the undergraduate research and honor society, undertake individual and team projects under the direction of members of the faculty. Lectures on the principles and practice of research are provided for the membership. In addition, students assist in the execution of studies being pursued by faculty members. A limited number of student research fellowships are available for summer work under the direction of the staff. The scope of student research includes critical reviews of the literature, clinical studies in the techniques of the various disciplines of dentistry, and the evaluation of newer therapeutic agents and dental materials. Work in the basic sciences is encouraged.

The administrative offices and the clinical and research facilities of the School of Dental and Oral Surgery occupy three floors of the Vanderbilt Clinic wing of the Columbia-Presbyterian Medical Center, one of the great institutions of its kind in the East. In addition to research facilities in basic science departments in the College of Physicians and Surgeons, the School has research laboratories in two nearby buildings.

THE DENTAL CLINIC

The School benefits in many ways by its association with the Medical Center. One of the functions of its clinic is the dental care of patients in the Center's hospitals. Dental students are given a unique opportunity to gain experience in the diagnosis and care of those cases where a relationship exists between oral and general systemic diseases. The student also learns at first hand the problems of providing dental care for the hospitalized patient. The wards and outpatient departments of the Center give close contact and association with all branches of the health services.

THE LIBRARY

The Medical Library occupies parts of the three lower floors in the College building. It provides current literature, both books and journals, for faculty and students, and it aids in research through its own collection of current and historical works and through its unique bibliographic service.

The library contains approximately 295,000 volumes of books and journals, some 5,000 pamphlets, and about 2,000 slides on the history of medicine. More than 4,500 periodicals are received regularly. A professional library staff is available to aid students, faculty, and research workers in medicine, dentistry, nursing, public health, and the hospitals of the Medical Center.

The libraries on the Morningside campus, which contain over 4,000,000 books, periodicals, and documents, are open to all students. The main collection is housed in Butler Library, while special departmental collections are located in various other buildings on the campus. They include collections on biology, chemistry, psychology, sociology, and other subjects related to dentistry and supplement the special collections available in the Medical Library. Books may be borrowed for home use.

The Medical Library is open Monday through Friday, 8:30 a.m. to 11 p.m.; Saturday, 9 a.m. to 5 p.m.; and Sunday, 12 noon to 10 p.m., during the academic year. All other libraries post their hours.

► POSTGRADUATE TRAINING

The School of Dental and Oral Surgery arranges courses in the various areas of dentistry to meet the needs of practitioners. In 1970–1971 short refresher courses will be offered in various subjects. Admission requirements include graduation from an approved dental school and licensure to practice dentistry within the United States or a foreign country. There is no degree or certificate offered for these courses.

The School is also authorized to grant certificates of training in special branches of dentistry. Study for the certificate of training includes special work in the clinical and basic-science branches of dentistry approved by the Dean. At present, programs are offered to qualify graduates in dentistry who wish to prepare for specialization in endodontics, oral surgery, orthodontics, pedodontics, periodontology, and prosthodontics.

For further information see the bulletin of Postgraduate Courses for Dentists, which may be obtained from the Admissions Office, School of Dental and Oral Surgery.

GRADUATE COURSES IN THE BASIC SCIENCES

A limited number of fellowships are available to graduates of accredited dental schools. These fellowships offer opportunity for study in the following basic-science departments of the University: anatomy, biochemistry, microbiology, pathology, pharmacology, and physiology. For further information, address the Dean, School of Dental and Oral Surgery.

COURSES LEADING TO THE DEGREE OF DOCTOR OF PHILOSOPHY

Graduation from accredited dental schools under the present curriculum of four academic years preceded by three acceptable pre-dental college years is considered by the Graduate School of Arts and Sciences of Columbia University to meet the general requirement for admission. There are additional admission requirements in certain departments. A student who is accepted by the Graduate School as a candidate for the degree of Doctor of Philosophy and who holds the Doctor of Dental Surgery degree from Columbia University may, with the consent of the Dean, offer the work done for the professional degree in lieu of points toward the fulfillment of the residence requirement for the degree. For further information see the bulletin of the Graduate Faculties, which may be obtained by writing to the Graduate School of Arts and Sciences Office of Admissions and Financial Aid, 106 Low Memorial Library, Columbia University, New York, N.Y. 10027.

PUBLIC HEALTH FOR DENTISTS

A one-year course leading to a Master of Public Health degree is offered by the School of Public Health. The course is open to graduate dentists. For further information regarding course content, registration, and fees, apply to the Director, School of Public Health and Administrative Medicine, 600 West 168th Street, New York, N.Y. 10032.

► COURSES FOR DENTAL HYGIENISTS

Columbia offers a bachelor's and a master's degree in dental hygiene. Candidates for the Bachelor of Science degree are admitted only in September under one of two classifications: Program A, for the student with two years of liberal arts college credit; Program B, for the student with two years of dental hygiene college credit. Candidates for the Master of Science degree are admitted in February or September. The program for the M.S. degree provides advanced education in dental hygiene administration, research, and teaching.

For further information address inquiries to the Director, Courses for Dental Hygienists, 630 West 168th Street, New York, N.Y. 10032.

Courses of Instruction

The University reserves the right to withdraw or modify the courses of instruction or to change the instructors at any time. As indicated in the Objectives and Program of Study, the curriculum is undergoing extensive revision. Announcements concerning course titles, content, and staffing of a number of new courses will be made prior to the start of the 1970-1971 academic year.

ANATOMY

Anatomy 115. Oral microscopic anatomy and embryology

Professor Salentijn and the staff. Second year.

This course is the same as *Oral Biology 200*.

Lectures, conferences, and laboratory on the detailed microscopic anatomy and development of the dental and associated orofacial structures.

Anatomy 150. Microscopic anatomy

Professor Dempsey and the staff. First year.

Lectures, conferences, and laboratory.

This course is the same as *Anatomy 101F* in the College of Physicians and Surgeons.

Anatomy 151. Gross anatomy and embryology

The staff. First year.

Regional dissections of the complete body, augmented by lectures stressing *functional* interpretations.

Lectures correlate developmental anatomy with gross anatomy.

Anatomy 153. Nervous system

Professors Carpenter and Noback and assistants. First year.

Lectures and demonstrations on the gross anatomy, structure, and functions of the central nervous system.

Anatomy 352. Functional anatomy of the head and neck

Professor Crikelair and the staff. Third year.

A concise review of the functional interrelationships in this region and their dynamic significance.

Pertinent clinical topics are analyzed from this viewpoint.

BIOCHEMISTRY

Biochemistry 150. Principles of biochemistry

The staff. First year.

A survey of the chemical constituents of the mammalian cell and their metabolic activities; energy production in the cell, and its role in the synthesis of biological macromolecules.

INTERDISCIPLINARY CORRELATION COURSES

Correlation Clinics 100.

Professors Taggart and Herter. First year.

A series of clinics illustrating the application of basic science to the understanding of disease mechanisms.

Introduction to Dentistry 100.

Professor Bartelstone and the staff. First year.

Lectures, demonstrations, and periods of clinical observation designed to define the scope of dentistry early in the career of the dental student. Correlation between the preclinical and clinical disciplines is an integral part of the course content.

Introduction to Dentistry 200.

Professor Bartelstone and the staff. Second year.

Lectures, demonstrations, and clinical observation designed to permit the second-year student to experience the newly developing curriculum as early as possible. It begins to supply the background he needs to utilize fully the modifications in emphasis and course content in his ensuing clinical training.

Dental Materials 327. Physical properties of dental materials

Professor Ayers. Third year.

Lectures and demonstrations relating the properties and functions of the restorative and accessory dental materials with the oral tissues. This is supplemented by correlated instruction in the various clinical disciplines during the second, third, and fourth years.

Comprehensive Case 485. Comprehensive case

The staff. Fourth year.

Each student is assigned a case for which he performs all the dental services: taking of x-ray negatives, treatment planning, surgery, and reparative and restorative procedures. The services are carried out in the various clinical divisions. The oral examination accompanying the inspection of the completed case aims to correlate the teaching of the entire course.

Temporomandibular Joint Disorders 484.

The staff. Fourth year.

Lectures, clinical demonstrations, and conferences on the principles of the diagnosis and treatment of disorders of the temporomandibular joints.

ENDODONTICS**Endodontics 232. Endodontics theory and technique**

Professor Leavitt and the staff. Second year.

Lectures and seminars on the fundamentals of endodontics. Demonstrations and exercises in endodontic technique on extracted teeth.

Endodontics 335. Basic clinical endodontics

Professor Leavitt and the staff. Third year.

Demonstrations and clinical experience in the practice of endodontics on selected single-rooted teeth.

Endodontics 436. Advanced clinical endodontics

Professor Leavitt and the staff. Fourth year.

Lectures and clinical experience in more advanced problems in endodontics.

MEDICINE**Medicine 378. General survey of medicine**

Professor Cosgriff and the staff. Third year.

The important aspects of internal medicine, with reference to fundamentals as well as recent diagnostic and therapeutic advances. Particular emphasis on over-all medical problems and their implications for dentistry.

MICROBIOLOGY**Microbiology 151. General medical microbiology and immunology**

The staff. First year.

Laboratory and conferences.

Microbiology 152. Principles of microbiology, immunology, and epidemiology

The staff. First year.

This course is similar to *Microbiology 105F* in the College of Physicians and Surgeons. Lectures on oral microbiology are substituted for several of those of the medical series.

OPERATIVE DENTISTRY**Operative Dentistry 231. Elements of operative dentistry**

Professor Portway and the staff. Second year.

Lectures and laboratory exercises on the fundamentals of operative dentistry, including the etiology of dental caries and the biological approach to the technical procedures in the restoration of teeth. Periods of clinical observation are an integral part of the course.

Operative Dentistry 333. Operative clinical practice

Professor Cain and the staff. Third year

Introduction to the clinical practice of operative dentistry. Lectures, demonstrations, and clinical experience in the recognition of disease and related conditions. Prevention, treatment planning, and restoration to form and function.

Operative Dentistry 434. Advanced clinical practice

Professor Cain and the staff. Fourth year.

A continuation of *Operative Dentistry 333*, with the addition of seminars in the special problems of operative dentistry.

ORAL BIOLOGY**DEVELOPMENT AND FUNCTION**

A correlated, interdisciplinary series of courses.

Oral Biology 200. Oral microscopic anatomy and embryology

Professor Salentijn and the staff. Second year.

This course is the same as *Anatomy 115*.

Lectures, conferences, and laboratory.

Oral Biology 201. Oral anatomy and occlusion

Professors Arden, Horowitz, and the staff. Second year.

Lectures, seminars, and laboratory sessions in oral anatomy. Dental morphology and evolution and theories of occlusion. A joint course of the divisions of orofacial development and oral biology.

Oral Biology 202. Growth and development

Professor Horowitz and the staff.

Lectures in the development of the dentition including embryo-genesis, timing and sequence of calcification and eruption, development of occlusion, and changes in the dentition with age. A joint course of the divisions of orofacial development and oral biology.

BIOLOGY OF THE ORAL TISSUES**Oral Biology 210. Oral biochemistry**

Professors Smith and Persons. Second year.

Lectures and seminars on the biochemical nature of the oral tissues and their metabolic activities.

Oral Biology 211. Oral physiology

Professors Di Salvo, Mandel, and the staff. Second year.

Lectures and seminars on the physiology of the masticatory system, special sensation, oral secretory system, oral circulation, and their relation to dental practice.

Oral Biology 212. Oral pharmacology

Professor Bartelstone and the staff. Second year.

Lectures and seminars designed to provide a comprehensive pharmacologic base for dental practice.

Oral Biology 213. Oral microbiology

The staff. Second year.

Lectures and seminars on the microbiologic, viral, and immunologic aspects of the oral diseases.

OROFACIAL GROWTH AND DEVELOPMENT**Statistics and Epidemiology 200.**

Professors Chabora, Applewhite, and the staff. Second year.

Lectures, seminars, fieldwork, and laboratory sessions in basic biostatistics and dental epidemiologic methods and techniques. A joint course of the divisions of orofacial growth and development and preventive dentistry and community health.

ORTHODONTICS**Orthodontics 341. Principles of orthodontics**

Professors Di Salvo and Spengeman, and the staff. Third year.

Lectures and laboratory. Orthodontic fundamentals, with special emphasis on prevention of malocclusion by the early recognition and correction of the predisposing factors. Laboratory time is devoted to the designing and construction of fixed and removable appliances used as space maintainers. In addition, simple appliances used in tooth guidance procedures, which are considered to be within the province of the general practitioners of dentistry, are constructed.

Orthodontics 342. Orthodontic clinic

Professors Di Salvo, M. Gliedman, and R. Gliedman. Third year.

Students obtain clinical experience in the use of appliances constructed in the laboratory. They treat patients with orthodontic problems which require either preventive measures or minor tooth movement.

PATHOLOGY**Pathology 150. General and special pathology**

Professors Blanc, Cowen, Duffy, Gambino, Godman, King, Lane, Lattes, Osserman, Stoerk, Vogel, Wagner, and Wilens. First year.

Same course as that given to medical students, including lectures, seminars, and laboratories, with emphasis on gross and microscopic examination of tissues, correlated with clinical findings.

Pathology 246. Oral pathology

Professor Blake and the staff. Second year.

Lectures, demonstrations, conferences, and laboratory work on diseases of the jaws, teeth, and soft tissues about the oral cavity. Emphasis on clinical manifestations of the various diseases.

PEDODONTICS**Pedodontics 301. Fundamentals of pedodontics and preventive dentistry**

Professor Rosenstein. Third year.

Lectures on basic aspects of pedodontics and the role of pedodontics in preventive dentistry. The several phases of dental service for children, mean ages for various stages of normal dental growth and development, the significance of dental service, and areas of dental service involving preventive measures. Also included is preparation for the technique course: anatomical details of primary teeth and principles of operative procedures for the primary teeth.

Pedodontics 302. Technique course

Professors Nathanson and Berg and Dr. Wolmer. Third year.

Demonstration and technique exercises in special operative procedures for compound-cavity preparation and filling, and full-crown coverage for primary teeth on technique models using newer types of cutting instruments.

Pododontics 403. Preventive dentistry

Professor Rosenstein. Fourth year.

Lectures on the principles of prevention of dental and oral disease and disorders in children: dental caries, the common oral soft-tissue lesions, disorders of occlusion in the developing dentitions, and elimination of unfavorable habits involving the mouth. Constitutional and systemic factors (including nutrition) are included, as well as local oral factors. In each of these areas specific recommendations are made for elimination of unfavorable factors and clinical application of positive preventive measures. Pertinent literature is assigned and reviewed.

Pododontics 404. Theory and practice of pododontics

Professor Rosenstein. Fourth year.

Lectures and conferences on the factors involved in basic treatment planning for children and requisite background knowledge: clinical aspects of the various stages of dental development, child evaluation and management, purposes and essentials of pododontic history-taking, home care, special operative procedures involving pulp therapy for conservation of children's teeth, management of traumatized teeth, and special considerations in dental care for children with handicapping conditions.

Pododontics 405. Pododontics clinic

Professor Rosenstein and the staff. Fourth year.

Clinical practice in management of the child patient and application of the principles and procedures presented in the lecture courses: history-taking, prophylaxis, and special operative procedures for prevention of premature loss of children's teeth. Application of knowledge of dental development, child development, and preventive dentistry is emphasized in evaluation of the child dental patient and in treatment planning. Assignments to the clinic for handicapped children are included.

PERIODONTICS**Periodontics 201. Periodontics lectures, seminars, and clinic**

Professor Gottsegen and the staff. Second year.

Lectures and seminars in the diagnosis, etiology, and treatment of periodontal diseases. Clinical practice in examination and documentation of clinical findings in the periodontal patient, prophylaxis, subgingival scaling and root planing, teaching and motivating patients to perform personal oral hygiene. The fundamentals of preventive periodontics are covered.

Periodontics 301. Periodontics lectures, seminars, and clinic

Professor Gottsegen and the staff. Third year.

Lectures and seminars on periodontal surgery, occlusal traumatism, selective tooth grinding, specific periodontal diseases and infections, systemic background factors and interrelationships, methods of temporary stabilization of teeth, introduction to treatment planning, and case presentation both in seminar and clinic. Clinical practice in subgingival curettage, simple surgical techniques, occlusal adjustment by selective grinding, and temporary stabilization.

Periodontics 401. Periodontics lectures and seminars

Professor Gottsegen and the staff. Fourth year.

Lectures and seminars tracing the historical development of treatment methods, advanced surgical techniques, special therapeutic problems, fixed and permanent splinting and restorative dentistry for the periodontally involved dentition. A review of periodontal histopathology related to the clinical experience, treatment planning, case management, and case presentation.

Periodontics 402. Periodontics clinic

Professor Gottsegen and the staff. Fourth year.

A continuation of *Periodontics 301*. Advanced periodontal surgical techniques and the clinical management of more complex cases.

Periodontics 403. Seminars and clinic

Professor Gottsegen and the staff. Fourth year elective-honors program

Limited to 6 students.

Seminar subject material researched by literature review and independent critical analysis. Clinic experience in the diagnosis, treatment planning, and therapeutic management of complex and difficult cases. The objective of this honors program is to have the student achieve the didactic knowledge and clinical competence of the first-year postgraduate student.

PHARMACOLOGY

Pharmacology 250. Introduction to pharmacology

The staff. Second year.

Lectures on a wide variety of drugs. The effects of many of these drugs on man and lower animals are demonstrated in the laboratory. Emphasis on general pharmacological principles to assist the student in the rational use of drugs and in the evaluation of new remedies as they may be introduced.

PHYSIOLOGY

Physiology 150. Mammalian physiology

Professor Nocenti and the staff. First year.

Lectures, conferences, demonstrations, and laboratory. The function of the various organ systems of the mammalian body and their interrelations.

PREVENTIVE DENTISTRY AND COMMUNITY HEALTH

Preventive Dentistry 200. Principles of preventive dentistry

Professor Mandel and the staff. Second year.

Lectures and seminars on the etiology, histopathology, and prevention of the plaque diseases—caries and periodontal diseases; preventive aspects of malocclusion and oral lesions; nutrition, patient education, and motivation for prevention.

Preventive Dentistry 201. Laboratory and clinical exercises

Professors Mandel, Weinstein, Wotman, and Zengo. Second year.

The techniques for studying plaque, calculus, saliva, and gingival fluid. Clinical training in fluoride procedures and dietary analysis.

Preventive Dentistry and Community Health 202.

Professors Applewhite, Dworkin, and the staff. Second year.

Lectures, demonstrations, and field exercises in education for prevention.

Community Health 300. Social dynamics

Professor Applewhite. Third year.

Lectures and seminars on utilization of health facilities by groups, response of society and the individual to health problems, social and cultural conditions that influence disease, environment and ecology; the dynamics of community action and sociocultural barriers and motivating factors.

Community Health 301. Principles of community health

Professor Applewhite. Third year.

Survey course in theory and practice of public health with more detailed discussion of dental public health, group practice, community involvement, and dental health education resources. Opportunities are provided for field trips and observation of dental problems and dental care in community and institutional settings.

Dental Auxiliary Utilization 300 and 400.

Professor Kaplan. Third and fourth years.

Lectures, demonstrations, and clinical practice in the efficient utilization of chairside dental auxiliaries under conditions simulating private practice. Operative positions for the dental team and patient, preplanned sequential instrumentation and treatment within the concepts of "four-handed" dental team operation. Equipment and operating area principles and evaluation, communication, and training auxiliary personnel.

Systems of Dental Practice 300. Ethics, jurisprudence, and history of dentistry

Professor Applewhite and the staff. Third year.

Lectures as prerequisite to the proper appreciation of community dentistry. They include the broad obligations posed by socioeconomics, humanities, ethics, and jurisprudence, and consider the evolution of preventive dentistry and community health as part of the advances made in dentistry.

Systems of Dental Practice 400. Health economics

Professor Applewhite and the staff.

The present and projected means of government, insurance, industrial, labor, and private financing of oral health care. The advantages and disadvantages of each method of financing oral care.

PROSTHODONTICS**Prosthodontics 200. Preclinical prosthodontics**

Professors Caronia, Uccellani, and the staff. Second year.

Lectures and demonstrations on theory and procedures in the fabrication of fixed, removable, and complete prostheses. Wherever necessary for the learning of manipulative skills in preparation for clinical objectives, procedures are carried out on models in the laboratory by the student. Periods of clinical observation are an integral part of the course.

Prosthodontics 300. Core clinical prosthodontics

Professors Lucca, Caronia, Uccellani, and the staff. Third year.

Lectures, demonstrations, and clinical experience in the biological principles and practice of the more simple cases in all phases of prosthodontics—fixed and removable partial dentures and complete dentures.

Prosthodontics 400. Advanced prosthodontics

Professors Lucca, Caronia, Uccellani and the staff. Fourth year.

Lectures, demonstrations, seminars, and advanced clinical experience in the biologic principles and practice of fixed and removable dentures. Lectures on different concepts of occlusion and other schools of thought on various aspects of prosthodontics are given by the staff and guest lecturers.

Prosthodontics 401. Surgical prosthesis

Professor Bruno. Fourth year.

Lectures and technical procedures in maxillofacial and surgical prosthesis.

PSYCHIATRY**Psychiatry 100, 200, and 300. Human behavior**

Professor Schoenberg and the staff. First, second, and third years.

Psychosocial aspects of patient care. Lectures, demonstrations, and seminars.

STOMATOLOGY**Diagnosis and Radiology 200. Diagnosis and radiology lectures**

Professor Budowsky, Dr. Donovan, and the staff. Second year.

Lectures and discussions on history, physics, and electronics of radiology; studies on radiobiology, radiotherapy, radiation hazards, and protections; radiographic techniques and processing. Fundamentals of radiographic interpretation; diagnosis of pulpal diseases and associated abnormalities.

Diagnosis 201. Clinical stomatology conferences

Professors Zegarelli, Marder, Kutscher, and the staff. Second, third, and fourth years.

Required for third- and fourth-year and postdoctoral students, but second-year students and members of the staff are urged to attend.

Presentation by students of case histories of patients with diseases of the mouth and jaws which are of diagnostic interest and importance. General discussion of each case by and with the audience is encouraged.

Diagnosis 310. Clinical cancer training

Professor Zegarelli and the staff. Third year.

Lectures and clinical experience in the diagnosis and treatment of tumors of the head, face, and neck. The student is rotated for one week through the otolaryngology, radiotherapy, dermatology, and maxillofacial prosthesis clinics. Operating room experience in the surgical management of tumors is included.

Diagnosis 312. Diagnosis lectures and clinic

Professor Zegarelli and the staff. Third year.

Lectures and discussions on diagnostic methods and techniques, diseases of the maxilla and mandible, tumors of the mouth, and diseases of the soft tissue. Clinical practice in mouth examination, history-taking, diagnosis of mouth and jaw diseases, and treatment-planning

Diagnosis 413. Diagnosis clinic

Diagnosis staff. Fourth year.

Clinical practice in diagnostic procedures and techniques, comprehensive diagnosis including treatment-planning, and clinical and laboratory diagnosis of diseases of the mouth and jaws.

Diagnosis 415. Diagnosis lectures

Professor Zegarelli and the staff and guest lecturers. Fourth year.

Lectures on focal infection; psychogenic disturbances, neurological diseases, radiation therapy, and diseases of the maxillary sinus.

Radiology 367. Radiology clinic

Professor Budowsky, Dr. Donovan, and the staff. Third year.

Clinical practice in intraoral and extraoral radiography; demonstrations of temporomandibular joint panoramic and laminographic techniques.

Therapeutics 386.

Professors Kutscher and Marder. Third year.

Lectures and conferences on the application of the principles of pharmacotherapeutics to general practice. Lectures on indications for therapy, choice of drugs, modes of administration, and side reactions are specifically integrated with the lectures of *Diagnosis 312*.

SURGERY**Surgery 200. Pain control in dental practice**

Professor Winner. Second year.

Lectures and demonstrations on the clinical applications of the principles of anatomy, physiology, and pharmacology to the understanding of the pain mechanism and its alteration by psychological, chemical, and surgical methods. Management of pain with local anesthesia and supportive analgesics and psychological methods is emphasized.

Surgery 201. Basic exodontia

Professor Baurmash. Second year.

Lectures and demonstrations covering the evaluation, treatment plan, and preparation of the patient for the uncomplicated removal of teeth. The basic principles of tooth movement in exodontia, the related anatomy of the oral cavity, and the procedures for assurance of asepsis.

Surgery 300. Dentoalveolar surgery

Professor Friedrich. Third year.

Lectures, seminars, and clinical practice in the evaluation of the patient, the evaluation of diagnostic data, and the development of the surgical decision; the principles of flap design and the surgical management of the hard and soft tissues of the mouth; the surgical removal of teeth and the surgical procedures related to orthodontics, prosthodontics, endodontics, periodontics, and oral diagnosis.

Surgery 301. Hard- and soft-tissue trauma and dental infections

Professor Loscalzo. Third year.

An analysis of the process of dental infection: the influence of anatomic relations in the developmental pattern of infection; the surgical anatomy essential to its proper medical and surgical management; the recognition and diagnosis of fractures of the mandible and maxilla and of related facial fractures; the management of fractures involving occlusion; and clinical practice in oral surgical problems.

Surgery 400. Surgery of associated oral tissues and structures

Professor L. Mandel. Fourth year.

Lectures and seminars on the large segment of surgical problems not associated with exodontia: the

differential diagnosis; the development of the surgical decision; the medical and surgical management of problems of the maxillary sinus, benign tumors, salivary glands, and cysts. Attention to the application of the basic sciences in the proper understanding and management of these problems.

Surgery 302. Pain control in dental practice

Professor Winner. Third year.

A continuation of *Surgery 200*, with emphasis on the alteration of the pain mechanism by the use of general anesthesia alone or in combination with analgesia and psychological influences. Special attention to the problems of utilizing general anesthesia for pain and patient control in a broad scope of dental practice and to the responsibilities for competence in the prevention and management of emergencies associated with its use.

Surgery 401. Seminar in oral surgery and hospital dental practice

Professors Friedrich, Minervini, Baurmash, and Anderson. Fourth year.

Problems in medical complications of oral surgical care and the basic principles and discipline of hospital dental practice. The student is expected to prepare the basic statement for the seminar.

Surgery 303. Hospital administration and practice

Professors Terenzio, Roistacher, and Stern. Third year.

Lectures on the historic development of the hospital as a center for total health care and education, the administration of its hotel and professional functions, the development and execution of policy concerning service rendered by the hospital, and the distribution of hospital costs. The doctor's professional and legal responsibilities and the hospital discipline required to assure efficient, high-quality patient care.

Surgery 402. Clinical oral surgery practice

Professor Friedrich and the staff. Fourth year.

The basic skills in the administration of local anesthesia, exodontia, and dentoalveolar surgical procedures. The clinical training correlates the basic science training with the solution of oral surgical problems.

Surgery 403. Clinical clerkship at The Roosevelt Hospital

Professor Linz. Fourth year.

Two-week assignments of students in pairs to The Roosevelt Hospital. Supervised by the Hospital Dental Service, the students receive indoctrination in all hospital functions in an environment where the Service is a full partner in the management of routine and emergency facial and oral health problems, with specific attention to the concept of total patient care through the well-integrated team system.

Summary of the Program

Because of major revisions in curriculum, the following summary reflects the program for the year 1970–1971. Consequently, certain course offerings may appear to be duplicated and others may appear to be omitted.

FIRST YEAR (CLASS OF 1974)

Anatomy 150	Introduction to Dentistry 100
Anatomy 151	Microbiology 151 and 152
Anatomy 153	Pathology 150
Biochemistry 150	Physiology 150
Correlation Clinics 100	Psychiatry 100

SECOND YEAR (CLASS OF 1973)

Anatomy 115	Periodontics 201
Diagnosis 201	Pharmacology 250
Diagnosis and Radiology 200	Preventive Dentistry and Community Health 200, 201, and 202
Endodontics 232	Prosthodontics 200
Introduction to Dentistry 200	Psychiatry 200
Operative Dentistry 231	Statistics and Epidemiology 200
Oral Biology 200*, 201, 202, 210, 211, 212, and 213	Surgery 200 and 201
Pathology 246	

*Identical to *Anatomy 115*.

THIRD YEAR (CLASS OF 1972)

Anatomy 352	Orthodontics 341
Community Health 300 and 301	Orthodontics 342
Dental Auxiliary Utilization 300	Pedodontics 301 and 302
Dental Materials 327	Periodontics 301
Diagnosis 201	Prosthodontics 300
Diagnosis 310	Psychiatry 300
Diagnosis 312	Radiology 367
Endodontics 335	Surgery 300, 301, 302, and 303
Medicine 378	Systems of Dental Practice 300
Operative Dentistry 333	Therapeutics 386

FOURTH YEAR (CLASS OF 1971)

Comprehensive Case 485
Dental Auxiliary Utilization 400
Diagnosis 201
Diagnosis 413
Diagnosis 415
Endodontics 436
Operative Dentistry 434
Pedodontics 403, 404, and 405

Periodontics 401 and 402
Prosthodontics 400
Prosthodontics 401
Surgery 400, 401, 402, and 403
Systems of Dental Practice 400
Temporomandibular Joint
Disorders 484

Elective courses are offered in most divisions.

REQUIRED SUMMER SESSION CLINICS

These sessions are held during June and July for approximately eight to nine weeks (see page 7).

Admission, Registration and Expenses

Candidates should apply after July 1 during the academic year preceding that for which they seek admission, on application forms obtained from the Committee on Admissions, School of Dental and Oral Surgery, 630 West 168th Street, New York, N.Y. 10032. Each application must be accompanied by a check or money order for \$20, made payable to Columbia University, to cover the cost of processing the application. This fee is not returnable and is not credited toward tuition.

Required preparation: three full years at an acceptable college of arts and sciences, including the following courses (8 points of each): English composition and literature, physics, biology, inorganic chemistry, and organic chemistry.

Recommended preparation: additional courses in chemistry, advanced courses in biology, courses in mathematics, foreign languages, sociology, history, and the fine and industrial arts.

It is not necessary to complete the academic requirements before applying, but all requirements must be completed before registration. The admission of a student depends primarily on his preparation and intellectual capacity, but it also depends upon judgments of his character and health. Preference is given to applicants with bachelor's degrees from accredited colleges of arts and sciences.

DENTAL APTITUDE TESTS

All applicants must take the Dental Aptitude Tests, which are conducted by the Council on Dental Education at various testing centers throughout the United States and Canada. For further information apply directly to the Division of Educational Measurements, Council on Dental Education of the American Dental Association, 211 East Chicago Avenue, Chicago, Ill. 60611.

ACCEPTANCE FEE

Within one month after he receives notice of his acceptance, an applicant must notify the Committee on Admissions that he intends to enroll and must send a check or money order for \$200 made payable to Columbia University. If he registers for the term to which he has been admitted, the fee will be credited toward his tuition; if he does not register, the fee will not be refunded.

COMBINED COURSES

With Barnard College. Under the "professional option" plan, students from Barnard College may receive the Bachelor of Arts degree from Barnard after the

completion of three years of undergraduate work and the first year in the School of Dental and Oral Surgery. To be eligible for this privilege, before entering the School the student must have completed at Barnard 90 points of academic work (including all specific requirements), a major of 28 points, and the major examination or thesis.

With the School of General Studies. Students from the School of General Studies may exercise the professional option after the completion of 94 points (including all courses prescribed for the Bachelor of Science degree), not less than 64 of which must have been taken at Columbia University.

► REGISTRATION

Before attending classes, students must register in person at the Office of the Registrar on September 8–9, 1970. Registration consists of filling out forms required for University records and paying the fees. Late registration requires the approval of the Dean of the School and the payment of a late fee (see below).

All students will be asked to give social security numbers when registering in the University. Those who do not now have a number should obtain one from their local social security office well in advance of registration.

► AUDITING COURSES

Degree candidates in good standing who are enrolled for 15 or more points in the current term may audit one or two courses in any division of the University without charge by filing a formal application in the Registrar's Office (P&S, Room 2-405) during the change-of-program period. Applications require (a) the certification of the Registrar that the student is eligible to audit and (b) the approval of the dean of the school in which the courses are offered.

Elementary language courses, laboratory courses, and seminars are not open to auditors; other courses may be closed because of space limitations. In no case will an audited course appear on a student's record, nor is it possible to turn an audited course into a credit course by paying the fee after the fact.

► REGULATIONS

Each person whose registration has been completed will be considered a student of the University during the term for which he is registered unless his connection with the University is officially severed by withdrawal or otherwise. No student registered in any school or college of the University shall at the same time be registered in any other school or college, either of Columbia University or of any other institution, without the specific authorization of the dean or director of the school or college of the University in which he is first registered.

The privileges of the University are not available to any student until he has completed his registration. Since, under the University statutes, payment of fees is part of registration, no student's registration is complete until his fees have been paid.

No student is permitted to attend any University course for which he is not officially registered unless he has been granted auditing privileges. No student may register after the stated period unless he obtains the written consent of the proper dean or director.

ATTENDANCE AND LENGTH OF RESIDENCE

No degree will be granted to a student who has not registered for and attended at the School courses of instruction equivalent to at least four academic years of full-time work. No advanced standing is granted.

Students are held accountable for absences incurred owing to late enrollment. Any student whose religious duties conflict at any time with academic requirements should apply to his dean or director for an equitable solution.

A student in good standing may, for a valid reason, be granted a leave of absence by the dean or director of the division of the University in which he is registered.

ACADEMIC DISCIPLINE

The continuance of each student upon the rolls of the University, the receipt by him of academic credits, his graduation, and the conferring of any degree or the granting of any certificate are strictly subject to the disciplinary powers of the University.

HONOR CODE

Academic and intellectual integrity are accepted principles in the dental profession. An Honor Code, created and administered by the student body, is the formal acknowledgment of this understanding at the School of Dental and Oral Surgery. Each student is expected to abide by it.

► FEES

The following fees are prescribed by statute for the full program for one year for a candidate for the D.D.S. degree and are subject to change at any time at the discretion of the Trustees. Fees for a partial program are assessed by the Registrar as provided by the University statutes.

Tuition	\$2,500.00
Student health service fee for all full-time students, per academic year—(see page 25)	65.36

APPLICATION FEES AND LATE FEES

Application for admission	\$20.00
Application for each special examination	10.00
For renewal of application for a degree	1.00
For late registration	6.00
For late application, or late renewal of application, for a degree	5.00

FEES FOR REPEATED COURSES

A student who is required to repeat the work for any one year must pay the full tuition and fees.

WITHDRAWAL AND ADJUSTMENT OF FEES

A student who decides to withdraw from the University must notify the Registrar in writing at once. If he is under twenty-one years of age, his parent or guardian must first give consent in writing to the Registrar. He will be given an honorable discharge provided he is in good academic standing and not subject to discipline.

Any adjustment of the tuition that the student has paid is reckoned from the date on which the Registrar receives the student's written notification. The student health and hospital fee, application fees, late fees, and special fees are not subject to rebate. Up to and including the second Saturday after the first day of classes, tuition will be retained in the following amount:

Full-time study	\$50.00
Part-time study	25.00

After the second Saturday after the first day of classes in the term, the above amount is retained, plus an additional percentage of the remaining tuition (as indicated in the schedule below), for each week, or part of a week, of the term up to the date on which the student's written notice of withdrawal is received by the Registrar.

ADJUSTMENT SCHEDULE

	<i>Minimum Fees Retained</i>	<i>Percentage of Remaining Tuition Retained</i>
Second Saturday after first day of classes	\$25 or \$50	0
Week following second Saturday after first day of classes	25 or 50	10
Second following week	25 or 50	20
Third following week	25 or 50	30
Fourth following week	25 or 50	45
Fifth following week	25 or 50	60
Sixth following week	25 or 50	75
Seventh following week	25 or 50	90
Eighth following week	25 or 50	100 (no adjustment)

STUDENT HEALTH SERVICE FEE

The student health service fee is used to pay the annual premium of the Associated Hospital Service of New York for hospital insurance and to pay part of the cost of the Student Health Service. Students who already have hospital insurance are not charged the cost of the premium.

Daily office hours are held by the Student Health Service, Room 2-220, Vanderbilt Clinic. Members of the health service are available to attend ill students if they live near the Medical Center. Students who require hospitalization are cared for

either in the wards of the Medical Center or elsewhere under the terms of an insurance policy of the Associated Hospital Service of New York.

RENEWAL OF APPLICATION FOR THE D.D.S. DEGREE

An application for the D.D.S. degree terminates at the next regular time for the issuance of diplomas subsequent to the date of filing, but it may be renewed for a fee of \$1 each time that the candidate chooses to come up for consideration.

► ESTIMATED EXPENSES

The approximate cost of attending the School for an academic year of nine months is as follows:

	<i>Average</i>	<i>Minimum</i>
Tuition and fees for a full program	\$2,565.36	\$2,565.36
Room in one of the residence halls	630.00	510.00
Board in a University dining room	650.00	600.00

The average and minimum figures for board include the approximate cost of meals not provided under the weekly board plans; holiday periods are not included (see "Housing," pages 29–30).

In addition, each student should budget for such items as clothing, laundry and dry cleaning, travel, dues to organizations, amusements, and sundries. Those who live at home will probably spend about \$200 for lunches during the year.

BOOKS AND EQUIPMENT

Books. The approximate cost of books will be: in the first year, \$190; in the second year, \$300; in the third year, \$265; in the fourth year, \$120. Book lists are posted for each class during registration week. Books may be purchased from the Medical Center Bookstore on the first floor of the College of Physicians and Surgeons. The store is maintained expressly for the convenience of the students and staff of the Medical Center schools and hospitals.

Instruments and Supplies. Each student must buy, from the University, the original package outfit of instruments specified in the official instrument list. Unauthorized or incomplete equipment will not be accepted by the instructors. The estimated cost of instruments for students entering in September 1970, will be \$2,900 over the four-year period. In the first year the cost will be approximately \$50; in the second year, \$2,300; in the third year, \$550; and replacement of worn or broken instruments is the only anticipated expense in the fourth year. Students will have the option of paying for the second-year instruments: (1) in full when they are issued; (2) in two equal installments during the second year; or (3) in two, three, or four equal installments during the first two years. Variations in these figures may be necessary because of price fluctuations or new developments. Instruments must be paid for at the beginning of the academic year, but students who can demonstrate their need may borrow from

the University or from the Health Professions Loan Program to defray the cost. These are *estimates* and are subject to change. Students are asked *not* to present checks made out in advance and based upon these figures.

Microscopes. During the first and second years microscopes are provided by the School for an annual rental of \$15. If a student prefers to provide his own microscope, he must have it approved by the Department of Anatomy. It is recommended that the microscope be of standard make equipped with: (a) quadruple nose piece; (b) Abbe or variable focus condenser; (c) 4x, 10x, 43x objectives; (d) 96x oil immersion lens; (e) 10x wide field eye piece; (f) mechanical stage; (g) attached lamp; (h) carrying case. The cost of a new microscope ranges from \$460 to \$700, and of a reconditioned microscope from \$150 to \$450. Arrangements for approval and for purchase or rental should be made before registration for the opening term.

Lockers. Each entering student is assigned a locker; he must use a combination lock as prescribed by the School.

► FINANCIAL AID

Students may apply for loans and grants through the Dean's Office. Grants are awarded only in combination with loans; any student who can demonstrate his need is eligible to apply. Application forms are issued by the Dean's Office.

Student loans are available on the basis of financial need to full-time Columbia degree candidates to partially cover normal educational and living expenses for the year in which the loan is granted. The maximum amount that a student who is a citizen or a permanent resident may borrow in any one year from all sources, including non-University programs, is \$2,500. The University reserves the right to assign the funds from which loans are granted. Students who are United States citizens and residents of states having loan plans are urged to apply to these sources. Federal Health Professions loan funds are also available. To insure an early decision, applications for all loans should be filed for the autumn term by June 1; for the spring term by December 1.

The heavy schedule of the School makes it difficult for students to undertake outside part-time work during the academic year. If at all possible, other financial arrangements should be made.

NEW YORK STATE SCHOLAR INCENTIVE AWARDS

Any student who has been a legal resident of New York State for the preceding year is entitled to a Scholar Incentive Award for each term in which he is registered as a full-time degree candidate. The amount of this award is based upon the net taxable balance of his income and the income of those responsible for his support, as reported on the New York State income tax return for the previous calendar year. Further information and application forms may be obtained from the Department of Education, Regents Examination and Scholarship Center, Albany, N.Y. 12201. Application for awards should be filed three months in advance of the beginning of the term for which the grant is to apply.

AWARDS AND PRIZES

Alpha Omega Fraternity, Newark Alumni Chapter. An award of \$25 with a certificate, presented to the most deserving student in the first-year class.

Alpha Omega Scholarship Award. A plaque presented to the graduating student (not necessarily an Alpha Omegan) with the highest scholastic average for his four years of dental studies. First awarded in 1949.

American Academy of Oral Medicine. A certificate and a subscription to the *Journal of Oral Medicine*, awarded to a fourth-year student for excellence in this field.

American Academy of Gold Foil Operators. Certificate awarded to a fourth-year student for excellence in gold foil technique.

American Academy of Dental Radiology. A certificate awarded to a fourth-year student for excellence in this field.

American Academy of Periodontology. A student award certificate and a one-year subscription to the journals published by The American Academy of Periodontology, awarded to an outstanding student in periodontics.

American Association of Orthodontists. A certificate awarded to a student showing exceptional interest and special aptitude in orthodontics.

American College of Dentists, New York Section. An award of \$100 and a plaque or scroll. Presented to a third-year student who is a good all-around student, a member of the student section of the American Dental Association, and who exhibits leadership.

American Dental Society of Anesthesiology, Inc. An award certificate and a one-year subscription to *Anesthesia Progress*, awarded to a fourth-year student who has shown outstanding ability or interest in the field of pain control.

American Society of Dentistry for Children. A certificate, one year of membership in the Society, and a one-year subscription to *The Journal of Dentistry for Children*, awarded to a fourth-year student.

William Bailey Dunning Award for Excellence in Periodontology. A medal awarded to the graduating student who is the most proficient in periodontology. First awarded in 1957.

Ella Marie Ewell. A medal awarded to the graduating student who is the most proficient in some subject of dentistry.

International College of Dentists, U.S.A., Section. A plaque presented to the graduating student who has shown the most professional growth and development during his years of dental study.

Italian Dental Society Award. An award of \$100 to a second-year student who has demonstrated outstanding scholarship in his first year of study.

Vincent Petrullo Scholarship Award—Sponsored by the Italian Dental Society of New York. An award of \$100 to a third-year student who has demonstrated outstanding scholarship in his second year of study.

Prize for Excellence in Operative Dentistry. A plaque awarded by the staff of the Section of Operative Dentistry to the graduating student who has shown the greatest proficiency in operative dentistry.

Certificate for Excellence in Pedodontics. A plaque awarded to a graduating student for excellence in pedodontics. Established by the Class of 1929.

Psi Omega Fraternity Award. A plaque presented by the Gamma Lambda Chapter to the graduating student who has displayed exemplary professional conduct.

Rowe-Wiberg Medal. An award made by the Association of Dental Alumni to the graduating student who has shown the greatest proficiency in prosthetic dentistry.

Van Woert Scholarship Fund Prize. About \$550. Awarded to a graduating student who is high in scholastic attainment, personal character, and professional promise.

Women's Auxiliary to the 11th District Dental Society. An award of \$150 to a deserving fourth-year student who is a resident of the Borough of Queens.

► HOUSING

The University provides limited housing for undergraduate and graduate men and women, both single and married. Inquiries about men's housing and the accommodations for married students should be directed to the Residence Halls Office, 125 Livingston Hall, Columbia University, New York, N.Y. 10027. Women students should write to the women's residence hall, Johnson Hall, 411 West 116th Street, New York, N. Y. 10027.

Rates in the graduate men's residence halls range from \$535 to \$670 for the academic year. Meals are available in the University dining halls on a cash basis. All rates are subject to change.

In Johnson Hall, room rates for the academic year range from \$510 to \$725, with \$625 the median rate. All residents are required to take breakfast and dinner at Johnson Hall five days a week, at a cost of \$500 for the academic year, exclusive of weekends and the Christmas holidays. All rates are subject to change.

Burgess, at 542 West 112th Street, is a newly renovated, air-conditioned building for married graduate students. Accommodations range from efficiency apartments (one room plus kitchenette and bath) to two-bedroom apartments; basic furniture is provided. Rates range from \$132 to \$215 a month, including utilities. Requests for further information and for application forms should be directed to the Office of University Housing, 400 West 119th Street, New York, N.Y. 10027.

Students who wish to live in furnished rooms or apartments off campus should consult the Registry of Off-Campus Accommodations, 401 West 117th Street, Colum-

bia University, New York, N.Y. 10027, for information. Single rooms in private apartments range from \$15 to \$20 a week; double rooms, from \$20 to \$25. Most apartments, when available, are in the price range of \$160 to \$250 a month.

International House, a privately owned student residence near the campus, has accommodations for about five hundred graduate students, both foreign and American. Rates are \$80 to \$100 a month, including continental breakfast. To be eligible for admission a student must be at least twenty-one years old and must be registered for a minimum of 12 points or for a program of full-time research. Inquiries should be addressed to the Committee on Admissions, International House, 500 Riverside Drive, New York, N.Y. 10027.

► STUDENT ORGANIZATIONS

OMICRON KAPPA UPSILON

Epsilon Epsilon chapter of Omicron Kappa Upsilon, national honorary fraternity, was chartered in the School of Dental and Oral Surgery in 1934. The purpose of the fraternity is to recognize and honor a maximum of 12 percent of the members of the graduating class on the basis of scholarship, character, and potential for future professional growth and attainments.

THE WILLIAM JARVIE SOCIETY

The William Jarvie Society for Dental Research is a nonsecret, dental honor society, membership in which is based on scholarship and interest in dental research, and for which second-, third-, and fourth-year students are eligible. The society was organized in the School of Dental and Oral Surgery in 1920 and named after Dr. William Jarvie because of his wide interest in the promotion of dental research. The society aims to promote the spirit of research among the students.

THE STUDENT DENTAL ASSOCIATION

The Student Dental Association of Columbia University was established in 1960 to provide a professional and social forum in which the entire student body would participate. The general program of this organization is patterned after the program of local dental societies, in which the graduate dentist makes his contribution to the organized dental profession. The undergraduate dental student is exposed to the democratic process of organization function, policy development, and programming as he meets his responsibility for supporting the program of his association.

► GRADING SYSTEM AND REQUIREMENTS FOR PROMOTION

The following grading system is used: A, excellent; B, good; C, fair; F, failure.

A student may be admitted to the second, third, or fourth year of the dental curriculum only upon the recommendation of the officers of instruction under whom he has studied during the preceding year.

The School reserves the right to refuse readmission or promotion to any student

who is believed for any reason to be unsuited to the conditions of study in the School.

Students are classified for readmission or promotion under the following categories: (1) recommended for advancement; (2) recommended for readmission to the same class; (3) recommended neither for advancement nor for readmission to the same class.

► GRADUATION

The degree of Doctor of Dental Surgery will be awarded upon completion of the prescribed curriculum. Diplomas are issued at the times stated in the Academic Calendar.

► LICENSE TO PRACTICE DENTISTRY IN NEW YORK STATE

Those who wish to take the New York State Board examinations are advised to address the Division of Professional Licensing Services, New York State Department of Education, Albany, N.Y. 12201. All applications for admission to the examination should be completed at least thirty days before the examinations begin.

The State Department of Education will admit conditionally to the examination in anatomy, physiology and hygiene, chemistry, and histology applicants who are of good character, who are citizens of the United States or have declared their intention of becoming citizens in accordance with the law, who have completed the prescribed preliminary education requirement, and who are certified as having successfully completed the first two years of the required course in a registered dental school.

The scores on examinations in dentistry submitted by the Council of the National Board of Dental Examiners are now accepted by the New York State Board of Dental Examiners in lieu of its own written examinations.

Officers of Instruction

ANATOMY

CHAIRMAN: Professor Edward W. Dempsey

J. Michael Bedford. *Assistant Professor of Anatomy*

B.A., Cambridge, 1958; M.A., Vet.M.B., M.R.C.V.S., 1958; Ph.D., London, 1965

Philip W. Brandt. *Associate Professor of Anatomy*

B.A., Swarthmore, 1952; M.S., Pennsylvania, 1957; Ph.D., Columbia, 1960

Malcolm B. Carpenter. *Professor of Anatomy*

B.A., Columbia, 1943; M.D., Long Island, 1947

George W. Cooper, Jr. *Assistant Professor of Anatomy*

B.A., Brown, 1958; Ph.D., Stanford, 1964

Edward W. Dempsey. *Professor of Anatomy*

B.A., Marietta, 1932; Sc.M., Brown, 1934; Ph.D., 1937; M.A., Harvard, 1946; Sc.D., Marietta, 1954

William G. Dille. *Assistant Professor of Anatomy*

B.A., California, (Berkeley), 1965; M.A., 1967; Ph.D., 1970

Marie D. Felix. *Assistant Professor of Anatomy*

B.S., American, 1956; M.S., Cornell, 1961; Ph.D., 1962

Ray C. Henrikson. *Assistant Professor of Anatomy*

B.Sc., Massachusetts, 1959; M.Sc., Brown, 1961; Ph.D., 1965

Farish A. Jenkins, Jr. *Assistant Professor of Anatomy*

B.A., Princeton, 1961; M.S., Yale, 1966; Ph.D., 1968

W. Patrick Luckett. *Assistant Professor of Anatomy*

B.A., Missouri, 1961; M.A., 1963; Ph.D., Wisconsin, 1967

Sarah A. Luse. *Professor of Anatomy*

B.A., Rockford, 1940; M.D., Western Reserve, 1949

Edmund B. Masurovsky. *Assistant Professor of Anatomy*

B.S., Cornell, 1954; M.S., 1957; Ph.D., 1960

Melvin L. Moss. *Professor of Anatomy*

B.A., New York University, 1942; D.D.S., Columbia, 1946; Ph.D., 1954

Charles R. Noback. *Professor of Anatomy*

B.S., Cornell, 1936; M.S., New York University, 1938; Ph.D., Minnesota, 1942

Robin M. Rankow. *Assistant Clinical Professor of Anatomy*

D.D.S., Columbia, 1940; M.D., Rochester, 1950

Letty Salentijn. *Assistant Professor of Anatomy*

Tandarts, State University of Utrecht, 1967

S. C. Shen. *Assistant Professor of Anatomy*

B.S., Yenching, 1933; Ph.D., Cambridge, 1939

ANESTHESIOLOGY

CHAIRMAN: Professor S. H. Ngai

Ronald L. Katz. *Associate Professor of Anesthesiology*

B.S., Wisconsin, 1952; M.D., Boston, 1956

Lester C. Mark. *Professor of Anesthesiology*

M.D., Toronto, 1941

S. H. Ngai. *Professor of Anesthesiology*

M.B., National Central (China), 1944

BIOCHEMISTRY

ACTING CHAIRMAN: Professor David B. Sprinson

Reinhold Benesch. *Professor of Biochemistry*

B.Sc., Leeds, 1941; M.Sc., 1945; Ph.D., Northwestern, 1950

Erwin Chargaff. *Professor of Biochemistry*

Ph.D., Vienna, 1928

Irwin Clark. *Professor of Biochemistry (assigned to Orthopedic Surgery)*

B.A., Harvard, 1939; Ph.D., Columbia, 1949

Max A. Eisenberg. *Professor of Biochemistry*

B.A., Brooklyn, 1938; M.S., New York University, 1941; Ph.D., Duke, 1950

Philip Feigelson. *Associate Professor of Biochemistry*

B.S., Queens (New York) 1947; Ph.D., Wisconsin, 1951

Allen M. Gold. *Associate Professor of Biochemistry*

B.A., Chicago, 1950; Ph.D., Harvard, 1955

John D. Karkas. *Assistant Professor of Biochemistry*

B.A., Thessaloniki (Greece), 1952; Ph.D., Columbia, 1962

Alvin I. Krasna. *Associate Professor of Biochemistry*

B.A., Yeshiva, 1950; Ph.D., Columbia, 1955

Seymour Lieberman. *Professor of Biochemistry (assigned to Obstetrics and Gynecology)*

B.S., Brooklyn, 1936; M.S., Illinois, 1937; Ph.D., Stanford, 1941

Barbara W. Low. *Professor of Biochemistry*

B.A., Oxford, 1942; M.A., 1946; D.Phil., 1948

Richard W. Moyer. *Assistant Professor of Biochemistry*

B.S., Pennsylvania State, 1962; Ph.D., California (Los Angeles), 1967

Maurice Rapport. *Professor of Biochemistry (assigned to Psychiatry)*

B.S., College of the City of New York, 1940; Ph.D., California Institute of Technology, 1946

David J. Smith. *Associate Professor of Biochemistry (on leave, academic year)*

D.D.S., Columbia, 1944

David B. Sprinson. *Professor of Biochemistry*

B.S., College of the City of New York, 1931; M.S., New York University, 1936; Ph.D., Columbia, 1946

Parithychery Srinivasan. *Associate Professor of Biochemistry*

B.Sc., Madras, 1946; Ph.D., 1953

DENTAL AND ORAL SURGERY

CHAIRMAN: Professor Melvin L. Moss

ENDODONTICS

DIRECTOR: Professor Joseph M. Leavitt

Gerald H. Besen. *Assistant Clinical Professor of Dentistry*

D.D.S., Minnesota, 1947

- Howard I. Blum. *Assistant Clinical Professor of Dentistry*
B.A., Adelphi, 1956; D.D.S., Columbia, 1960
- Murray A. Cantor. *Assistant Clinical Professor of Dentistry*
B.A., Hofstra, 1949; D.D.S., Columbia, 1953
- Marvin N. Firdman. *Assistant Clinical Professor of Dentistry*
B.A., New York University, 1948; D.D.S., Columbia, 1952
- Fredric E. Goodman. *Assistant Clinical Professor of Dentistry*
D.D.S., Temple, 1962
- Joseph M. Leavitt. *Clinical Professor of Dentistry*
B.S., Oklahoma, 1936; D.D.S., Columbia, 1940
- William Miller. *Assistant Clinical Professor of Dentistry*
B.S., Columbia, 1929; D.D.S., 1931
- S. Abel Moreinis. *Assistant Clinical Professor of Dentistry*
D.D.S., Michigan, 1948
- Irving J. Naidorf. *Associate Clinical Professor of Dentistry*
B.A., New York University, 1937; D.D.S., Columbia, 1941
- Fred Rothenberg. *Associate Clinical Professor of Dentistry*
D.M.D., Goettingen, 1935; D.D.S., Pennsylvania, 1937
- Howard B. Vogel. *Assistant Clinical Professor of Dentistry*
D.D.S., Columbia, 1950

INTERDISCIPLINARY CORRELATIONS

DIRECTOR AND COORDINATOR OF CLINICAL EDUCATION: Professor Herbert J. Bartelstone

Herbert J. Bartelstone. *Professor of Dentistry and Professor of Pharmacology*
B.S., College of the City of New York, 1942; D.D.S., Columbia, 1945; Ph.D., 1960

OPERATIVE DENTISTRY

DIRECTOR: Professor Edward A. Cain, Jr.

- Roy Boelstler. *Assistant Clinical Professor of Dentistry*
B.A., Columbia, 1956; D.D.S., 1959
- Stanislaw H. Brzustowicz. *Assistant Clinical Professor of Dentistry*
B.S., St. John's, 1940; D.D.S., Columbia, 1943
- Edward A. Cain, Jr. *Professor of Dentistry*
B.S., Fordham, 1942; D.D.S., Columbia, 1945
- Kenneth C. Deesen. *Associate Clinical Professor of Dentistry*
D.D.S., Columbia, 1948
- Joseph E. Fiasconaro. *Associate Clinical Professor of Dentistry*
B.S., College of the City of New York, 1940; D.D.S., Columbia, 1943
- Herbert P. Fritz. *Assistant Clinical Professor of Dentistry*
B.S., New York University, 1933; D.D.S., Columbia, 1936
- George F. Lindig. *Associate Clinical Professor of Dentistry*
D.D.S., Minnesota, 1924
- George V. Lyons. *Assistant Clinical Professor of Dentistry*
B.S., St. Bernardine of Siena, 1950; D.D.S., Columbia, 1953

Thomas W. Portway. *Associate Professor of Dentistry*
B.S., Fordham, 1950; D.D.S., Columbia, 1956

George Rudensky. *Assistant Clinical Professor of Dentistry*
D.D.S., Columbia, 1958

Steven S. Scrivani. *Assistant Clinical Professor of Dentistry*
D.D.S., Columbia, 1948

Harold Sherman. *Associate Clinical Professor of Dentistry*
B.S., College of the City of New York, 1935; D.D.S., Michigan, 1946

ORAL BIOLOGY

DIRECTOR: Professor Melvin L. Moss

Abraham Greenberg. *Assistant Clinical Professor of Dentistry*
D.D.S., Temple, 1931

Saul N. Greenberg. *Assistant Clinical Professor of Dentistry*
D.D.S., New York University, 1947

Melvin L. Moss. *Professor of Anatomy*
B.A., New York University, 1942; D.D.S., Columbia, 1946; Ph.D., 1954

Herbert P. Ostreicher. *Assistant Clinical Professor of Dentistry*
B.A., Columbia, 1943; D.D.S., 1945

Philip Person. *Adjunct Professor of Oral Biology*
B.S., College of the City of New York, 1940; D.D.S., New York University, 1946; M.S., Rutgers, 1951;
Ph.D., 1952

ORAL SURGERY

DIRECTOR: Professor Rudolph H. Friedrich

Julien W. Anderson. *Assistant Clinical Professor of Dentistry*
D.D.S., Howard, 1949

Reynold J. Baumstark. *Assistant Clinical Professor of Dentistry*
B.A., Holy Cross, 1959; D.D.S., Columbia, 1963

Harold D. Baurmash. *Associate Clinical Professor of Dentistry*
D.D.S., Columbia, 1948

T. Mitchell Bundrant. *Clinical Professor of Dentistry*
D.D.S., Howard, 1929

Kourken A. Daglian. *Assistant Clinical Professor of Dentistry*
B.S., College of the City of New York, 1941; D.D.S., Columbia, 1943

Rudolph H. Friedrich. *William Carr Professor of Oral Surgery*
D.D.S., Northwestern, 1930

Bertram Klatskin. *Assistant Clinical Professor of Dentistry*
B.A., Cornell, 1937; D.D.S., Columbia, 1941

Louis J. Loscalzo. *Clinical Professor of Dentistry*
B.A., Fordham, 1942; D.D.S., Temple, 1946

Louis Mandel. *Associate Clinical Professor of Dentistry*
B.A., New York University, 1943; D.D.S., Columbia, 1946

George A. Minervini. *Associate Clinical Professor of Dentistry*
B.A., Columbia, 1942; D.D.S., 1946

Daniel D. Schube. *Assistant Clinical Professor of Dentistry*
B.A., Brooklyn, 1945; D.D.S., New York University, 1949

Louis R. Sharpe. *Assistant Clinical Professor of Dentistry*
B.A., McGill, 1958; D.D.S., 1963

Boaz M. Shattan. *Assistant Clinical Professor of Dentistry*
B.A., Columbia, 1940; D.D.S., 1943

Morton Jay Stern. *Assistant Clinical Professor of Dentistry*
B.A., Upsala, 1949; D.D.S., Temple, 1953

Morton A. Winner. *Adjunct Assistant Professor of Dentistry*
B.S., College of the City of New York, 1959; D.D.S., Columbia, 1963

At Grasslands Hospital:

Manuel M. Maslansky. *Associate Clinical Professor of Dentistry*
D.D.S., Columbia, 1928

At Long Island Jewish Hospital:

Leon Eisenbud. *Clinical Professor of Dentistry*
B.S., College of the City of New York, 1936; D.D.S., New York University, 1940

At Queens Hospital Center:

Bertram Blum. *Assistant Clinical Professor of Dentistry*
D.D.S., New York University, 1948

Allan L. Firestein. *Assistant Clinical Professor of Dentistry*
B.A., Columbia, 1950; D.D.S., 1953

Robert Himmelfarb. *Assistant Clinical Professor of Dentistry*
D.D.S., New York University, 1954

Seymour L. Roistacher. *Clinical Professor of Dentistry*
B.S., College of the City of New York, 1941; D.D.S., New York University, 1944

Martin Stern. *Assistant Clinical Professor of Dentistry*
D.M.D., Harvard, 1956

At Roosevelt Hospital:

Andrew M. Linz. *Clinical Professor of Dentistry*
D.D.S., Pennsylvania, 1948; M.Sc. (Dent.), 1953

Peter B. Terenzio. *Adjunct Professor of Dentistry*
L.L.B., Connecticut, 1940; M.H.A., Northwestern, 1950

OROFACIAL GROWTH AND DEVELOPMENT

DIRECTOR: Professor Sidney L. Horowitz

Alice J. Chabora. *Assistant Clinical Professor of Dentistry*
B.S., Cornell, 1964; M.S., 1965; Ph.D., 1967

Sidney L. Horowitz. *Professor of Dentistry*
B.S., Columbia, 1942; D.D.S., New York University, 1945

Edward C. McNulty. *Assistant Clinical Professor of Dentistry*
B.S., Holy Cross, 1957; D.M.D., Harvard, 1962

ORTHODONTICS

DIRECTOR: Professor Nicholas A. Di Salvo

Harry G. Barrer. *Assistant Clinical Professor of Dentistry*
B.S., Albright, 1938; D.D.S., Columbia, 1942

Jack M. Breuer. *Assistant Clinical Professor of Dentistry*
B.A., Columbia, 1946; D.D.S., 1949

Nicholas A. Di Salvo. *Professor of Dentistry*
B.S., College of the City of New York, 1942; D.D.S., Columbia, 1945; Ph.D., 1952

Monroe M. Gliedman. *Assistant Clinical Professor of Dentistry*
B.S., Massachusetts Institute of Technology, 1946; D.D.S., Columbia, 1952

Richard Gliedman. *Assistant Clinical Professor of Dentistry*
B.S., Massachusetts Institute of Technology, 1946; D.D.S., Columbia, 1952

Jacob I. Kaplan. *Assistant Clinical Professor of Dentistry*
B.A., New York University, 1938; D.D.S., Columbia, 1943

Francis J. Loughlin. *Clinical Professor of Dentistry*
D.D.S., New York University, 1939

Eugene F. Murphy. *Assistant Clinical Professor of Dentistry*
B.S., Xavier, 1953; D.D.S., St. Louis, 1957

Henry I. Nahoum. *Associate Professor of Dentistry*
B.A., Brooklyn, 1940; D.D.S., Columbia, 1943

Armand M. Oppenheimer. *Associate Clinical Professor of Dentistry*
B.A., College of the City of New York, 1926; B.S., Columbia, 1927; D.D.S., 1929

Margaritis Z. Pimenidis. *Assistant Professor of Dentistry*
D.D.S., Athens, 1961; M.D., 1966; M.S., Boston, 1969

Bert B. Schoeneman. *Assistant Clinical Professor of Dentistry*
B.A., Alabama, 1935; D.D.S., Columbia, 1939

Alexander B. Smith. *Assistant Clinical Professor of Dentistry*
D.D.S., Columbia, 1943

Walter G. Spengeman. *Associate Clinical Professor of Dentistry*
B.A., Columbia, 1938; D.D.S., 1941

Julius Tarshis. *Associate Clinical Professor of Dentistry*
D.D.S., Pennsylvania, 1949

Edward E. Teltsch. *Assistant Clinical Professor of Dentistry*
B.A., Columbia, 1932; D.D.S., Buffalo, 1936

Russel J. Vanacek. *Assistant Clinical Professor of Dentistry*
D.D.S., Pennsylvania, 1954

Clifford L. Whitman. *Clinical Professor of Dentistry*
D.D.S., Maryland, 1927

PEDODONTICS

DIRECTOR: Professor Solomon N. Rosenstein

Marc Louis Berg. *Assistant Clinical Professor of Dentistry*
D.D.S., Columbia, 1949

Albert Green. *Assistant Clinical Professor of Dentistry*

B.A., Temple, 1950; D.D.S., Pennsylvania, 1954

Seymour Koster. *Assistant Clinical Professor of Dentistry*

B.A., New York University, 1945; D.D.S., 1949

Philip Kutner. *Assistant Clinical Professor of Dentistry*

B.S., College of the City of New York, 1944; D.D.S., Columbia, 1951

Bernard Nathanson. *Associate Clinical Professor of Dentistry*

B.S., New York University, 1929; D.D.S., Columbia, 1932

Arnold Rosenberg. *Associate Clinical Professor of Dentistry*

B.S., New York University, 1943; D.D.S., 1945

Solomon N. Rosenstein. *Professor of Dentistry*

B.S., College of the City of New York, 1929; D.D.S., Columbia, 1930

Julian Schroff. *Assistant Clinical Professor of Dentistry*

B.S., College of the City of New York, 1930; D.D.S., Columbia, 1934

William A. Verlin. *Assistant Clinical Professor of Dentistry*

B.A., Columbia, 1929; D.D.S., Columbia, 1931

PERIODONTICS

DIRECTOR: Professor Robert Gottsegen

Seymour Albus. *Assistant Clinical Professor of Dentistry*

B.A., Brooklyn, 1943; D.D.S., Pennsylvania, 1946

Charles L. Berman. *Assistant Clinical Professor of Dentistry*

D.D.S., New York University, 1952

Frank E. Beube. *Clinical Professor of Dentistry*

L.D.S., D.D.S., Toronto, 1930

Herman Cantor. *Assistant Clinical Professor of Dentistry*

B.S., New York University, 1934; D.D.S., 1937

Alvin D. Cederbaum. *Assistant Clinical Professor of Dentistry*

D.M.D., Tufts, 1939

Neal W. Chilton. *Adjunct Professor of Dentistry*

B.S., College of the City of New York, 1939; D.D.S., New York University, 1943; M.P.H., Columbia, 1946

P. Charles Gabriele. *Assistant Clinical Professor of Dentistry*

B.A., Brooklyn, 1956; D.D.S., Pennsylvania, 1958

Arnold M. Geiger. *Assistant Clinical Professor of Dentistry*

B.A., New York University, 1938; D.D.S., Pennsylvania, 1941

Stephen F. Goodman. *Assistant Clinical Professor of Dentistry*

D.D.S., Pennsylvania, 1960

Robert Gottsegen. *Professor of Dentistry*

B.A., Michigan, 1939; D.D.S., Columbia, 1943

Leonard Hirschfeld. *Clinical Professor of Dentistry*

B.A., Columbia, 1941; D.D.S., 1944

Ellen N. Hosiosky. *Associate Clinical Professor of Dentistry*

D.M.D., Basle, 1935; D.H., Guggenheim Dental Clinic, 1939; D.D.S., Columbia, 1947

Raymond F. Johnson. *Adjunct Assistant Professor of Dentistry*

D.D.S., Pennsylvania, 1952

Irving A. Karel. *Assistant Clinical Professor of Dentistry*

D.D.S., Temple, 1956

Melvin L. Morris. *Clinical Professor of Dentistry*

B.S., College of the City of New York, 1934; M.A., Columbia, 1937; D.D.S., 1941

Bernard S. Moskow. *Associate Clinical Professor of Dentistry*

D.D.S., Temple, 1954; M.Sc.D., Pennsylvania, 1958

Ronald B. Odrich. *Assistant Clinical Professor of Dentistry*

B.S., Queens (New York), 1958; D.D.S., Columbia, 1959

Herbert I. Oshrain. *Assistant Clinical Professor of Dentistry*

B.S., College of the City of New York, 1938; D.D.S., New York University, 1942

Albert Salkind. *Assistant Clinical Professor of Dentistry*

D.D.S., Marquette, 1943

Murray Schwartz. *Assistant Clinical Professor of Dentistry*

B.A., New York University, 1950; D.D.S., Columbia, 1953

Bernard H. Wasserman. *Associate Clinical Professor of Dentistry*

B.A., Brooklyn, 1941; D.D.S., Columbia, 1944

PREVENTIVE DENTISTRY AND COMMUNITY HEALTH

DIRECTOR: Professor Irwin D. Mandel

Harold L. Applewhite. *Associate Professor of Dentistry*

D.D.S., Howard, 1948; M.P.H., Columbia, 1967

David Kaplan. *Assistant Professor of Dentistry*

B.S., College of the City of New York, 1958; D.D.S., New York University, 1960

Irwin D. Mandel. *Professor of Dentistry*

B.S., College of the City of New York, 1942; D.D.S., Columbia, 1945

George L. O'Grady. *Professor of Dentistry*

B.A., Fordham, 1929; D.D.S., Columbia, 1934

Ephraim Weinstein. *Assistant Clinical Professor of Dentistry*

D.D.S., Pennsylvania, 1959

Stephen Wotman. *Assistant Clinical Professor of Dentistry*

D.D.S., Pennsylvania, 1956

Albert Zengo. *Assistant Professor of Dentistry*

B.S., Tufts, 1959; D.D.S., Columbia, 1964

PROSTHODONTICS

DIRECTOR: Professor John J. Lucca

Howard A. Arden. *Associate Professor of Dentistry (on leave, academic year)*

B.S., Fordham, 1943; D.D.S., Columbia, 1946

Herbert D. Ayers. *Associate Professor of Dentistry*

B.A., Columbia, 1929; D.D.S., 1931

Victor S. Caronia. *Associate Professor of Dentistry*

D.D.S., Columbia, 1957

Joseph A. De Julia. *Assistant Clinical Professor of Dentistry*

B.S., Pittsburgh, 1951; D.D.S., Columbia, 1962

Joseph C. De Lisi. *Assistant Clinical Professor of Dentistry*

D.D.S., Columbia, 1952

- Gustav T. Durrer. *Adjunct Assistant Professor of Dentistry*
Dr. Med. Dent., Berne, 1937; D.D.S., Pennsylvania, 1940
- Joel Goldin. *Assistant Clinical Professor of Dentistry*
B.A., Amherst, 1959; D.M.D., Harvard, 1963
- George W. Hindels. *Adjunct Associate Professor of Dentistry*
M.D., Vienna, 1938; D.D.S., Columbia, 1943
- John J. Lucca. *Professor of Dentistry*
B.A., New York University, 1941; D.D.S., Columbia, 1947
- William J. Miller. *Associate Clinical Professor of Dentistry*
B.A., New York University, 1940; D.D.S., Columbia, 1943
- John M. Scarola. *Assistant Clinical Professor of Dentistry*
B.S., Fordham, 1956; D.D.S., Columbia, 1960
- Harry Shpuntoff. *Adjunct Associate Professor of Dentistry*
B.S., College of the City of New York, 1939; D.D.S., Columbia, 1943
- Ennio L. Uccellani. *Associate Professor of Dentistry*
B.S., College of the City of New York, 1946; D.D.S., Columbia, 1948
- Maxwell Widrow. *Assistant Clinical Professor of Dentistry*
D.D.S., Temple, 1940

At Grasslands Hospital:

- Morris Eckhaus. *Associate Clinical Professor of Dentistry*
D.D.S., Columbia, 1936
- Robert E. Herlands. *Adjunct Professor of Dentistry*
B.A., Columbia, 1941; D.D.S., 1944

STOMATOLOGY

DIRECTOR: Professor Edward V. Zegarelli

- Jack Budowsky. *Clinical Professor of Dentistry*
D.D.S., Columbia, 1943
- Robert E. Crowley. *Assistant Clinical Professor of Dentistry*
B.A., New York University, 1936; D.D.S., 1939
- Joseph A. Cuttita. *Professor of Dentistry*
B.A., Fordham, 1932; M.S., 1935; D.D.S., Columbia, 1939
- David Hendell. *Assistant Clinical Professor of Dentistry*
D.D.S., Columbia, 1959
- Frances R. Karlan. *Assistant Clinical Professor of Dentistry*
D.D.S., Columbia, 1949
- Mortimer Karmiol. *Associate Clinical Professor of Dentistry*
B.S., College of the City of New York, 1939; D.D.S., Columbia, 1943
- Paul Kornfeld. *Assistant Clinical Professor of Dentistry*
B.A., Alfred, 1941; D.D.S., Buffalo, 1944
- Austin H. Kutscher. *Associate Professor of Dentistry*
B.S., New York University, 1945; D.D.S., Columbia, 1946
- John K. Lind. *Assistant Clinical Professor of Dentistry*
B.S., St. John's, 1951; D.D.S., Columbia, 1957
- Michael Z. Marder. *Assistant Clinical Professor of Dentistry*
D.D.S., Columbia, 1963

- Richard Moskow. *Assistant Clinical Professor of Dentistry*
D.D.S., Temple 1957
- Robert N. Schiff. *Assistant Clinical Professor of Dentistry*
B.A., Columbia, 1955; D.D.S., 1956
- Stanley M. Steiner. *Assistant Clinical Professor of Dentistry*
B.A., Brooklyn, 1955; D.D.S., Columbia, 1959
- Robert Umans. *Associate Clinical Professor of Dentistry*
D.D.S., New York University, 1939
- Robert F. Walsh. *Associate Clinical Professor of Dentistry*
D.D.S., Columbia, 1947
- Edward V. Zegarelli. *Edwin S. Robinson Professor of Dentistry*
B.A., Columbia, 1934; D.D.S., 1937; M.S., Chicago, 1943
- Edward Zerden. *Assistant Clinical Professor of Dentistry*
B.A., Michigan, 1941; D.D.S., New York University, 1945

Section of Special Dental Services

- Morton S. Brod. *Assistant Clinical Professor of Dentistry*
B.A., Adelphi, 1951; D.D.S., Columbia, 1955
- Sebastian A. Bruno. *Associate Clinical Professor of Dentistry*
D.M.D., Tufts, 1948
- Alvin J. Grayson. *Assistant Clinical Professor of Dentistry*
D.D.S., Indiana, 1952
- Eugene P. LaSota. *Assistant Clinical Professor of Dentistry*
B.A., Hofstra, 1957; D.D.S., Columbia, 1961
- Joseph Luban. *Assistant Clinical Professor of Dentistry*
B.S., College of the City of New York, 1938; D.D.S., Columbia, 1942
- Joseph J. Marbach. *Adjunct Associate Professor of Dentistry*
B.A., Drew, 1956; D.D.S., Pennsylvania, 1960
- Marvin A. Prescott. *Adjunct Assistant Professor of Dentistry*
D.M.D., Harvard, 1955
- Philip J. Santora, Jr. *Adjunct Assistant Professor of Dentistry*
B.S., Cincinnati, 1962; D.M.D., New Jersey College of Dentistry, 1966
- David Zeisler. *Assistant Clinical Professor of Dentistry*
B.S., College of the City of New York, 1930; D.D.S., Columbia, 1934

DERMATOLOGY

- CHAIRMAN: Professor Carl T. Nelson
- Carl T. Nelson. *Professor of Dermatology*
B.A., Harvard, 1935; M.A., 1937; M.D., 1941
- Saul L. Sanders. *Associate Clinical Professor of Dermatology*
B.A., Kenyon, 1950; M.D., Cornell, 1954
- Meyer H. Slatkin. *Assistant Clinical Professor of Dermatology*
B.S., College of the City of New York, 1935; M.D., Edinburgh, 1940

MEDICINE

- CHAIRMAN: Professor Stanley E. Bradley
- Henry Aranow, Jr. *Professor of Clinical Medicine*
B.A., Harvard, 1935; M.D., Columbia, 1938

Stanley E. Bradley. *Samuel Bard Professor of Medicine*

B.A., Johns Hopkins, 1934; M.D., Maryland, 1938

Stuart W. Cosgriff. *Associate Professor of Clinical Medicine*

B.A., Holy Cross, 1938; M.D., Columbia, 1942

Richard B. Duane. *Assistant Clinical Professor of Medicine*

B.A., Princeton, 1940; M.D., Columbia, 1943

David J. Gocke. *Assistant Professor of Clinical Medicine*

B.A., St. Vincent, 1954; M.D., Pennsylvania, 1958

Donald A. Holub. *Assistant Professor of Clinical Medicine*

B.A., Columbia, 1949; M.D., 1952

George A. Hyman. *Assistant Clinical Professor of Medicine*

B.A., Columbia, 1942; M.D., 1945

Daniel L. Larson. *Assistant Clinical Professor of Medicine*

M.D., Columbia, 1946

Edgar Leifer. *Associate Professor of Clinical Medicine*

B.S., College of the City of New York, 1937; M.A., Columbia, 1939; Ph.D., 1941; M.D., 1946

John N. Loeb. *Assistant Professor of Medicine*

B.A., Harvard, 1957; M.D., 1961

George W. Melcher, Jr. *Associate Professor of Clinical Medicine*

B.A., Colorado, 1943; M.D., Columbia, 1946

Hans W. Neuberg. *Assistant Professor of Clinical Medicine*

B.A., Wagner, 1941; M.D., Columbia, 1950

Hymie L. Nossel. *Associate Professor of Medicine*

M.B.CHB., Cape Town, 1953

Kermit L. Pines. *Associate Professor of Clinical Medicine*

B.A., Columbia, 1937; M.D., 1942

Gerard M. Turino. *Associate Professor of Medicine*

B.A., Princeton, 1945; M.D., Columbia, 1948

MICROBIOLOGY

CHAIRMAN: Professor Harry M. Rose

Sam M. Beiser. *Professor of Microbiology*

B.S., College of the City of New York, 1942; Ph.D., Columbia, 1951

Richard M. Condie. *Assistant Professor of Microbiology*

B.S., Utah State, 1951; Ph.D., Minnesota, 1968

Joe E. Coward. *Assistant Professor of Microbiology*

B.S.E., State College of Arkansas, 1959; M.S., Arkansas, 1962; Ph.D., Mississippi School of Medicine, 1968

Paul D. Ellner. *Associate Professor of Microbiology*

B.S., Long Island, 1949; M.S., Southern California, 1952; Ph.D., Maryland, 1956

Bernard F. Erlanger. *Professor of Microbiology*

B.S., College of the City of New York, 1943; M.A., New York University, 1949; Ph.D., Columbia, 1951

Gabriel C. Godman. *Professor of Microbiology and Pathology*

B.A., New York University, 1941; M.D., 1944

Donald H. Harter. *Associate Professor of Neurology*

B.A., Pennsylvania, 1953; M.D., Columbia, 1957

Calderon Howe. *Professor of Microbiology*

B.A., Yale, 1938; M.D., Harvard, 1942

Elvin A. Kabat. *Professor of Microbiology*

B.S., College of the City of New York, 1932; M.A., Columbia, 1934; Ph.D., 1937

Wladislaw Manski. *Associate Professor of Microbiology*

M.Phil., Warsaw, 1939; D.Sc., Wroclaw, 1951

Councilman Morgan. *Professor of Microbiology*

B.S., Harvard, 1943; M.D., Columbia, 1946

Harry M. Rose. *John E. Borne Professor of Medical and Surgical Research*

B.A., Yale, 1928; M.D., Cornell, 1932

Herbert Rosenkranz. *Professor of Microbiology*

B.S., College of the City of New York, 1954; Ph.D., Cornell, 1959

Stuart W. Tanenbaum. *Professor of Microbiology*

B.S., College of the City of New York, 1944; Ph.D., Columbia, 1951

PATHOLOGY

CHAIRMAN: Professor Donald W. King

Chandra Amarasingham. *Assistant Professor of Pathology (assigned to Medicine)*

B.S., Kentucky, 1953; M.D., Harvard, 1959

Henry A. Azar. *Associate Professor of Pathology*

B.A., American University of Beirut, 1948; M.D., 1952

Melvin L. Blake. *Assistant Professor of Oral Pathology*

D.D.S., New York University, 1955

William A. Blanc. *Professor of Pathology*

B.A., Geneva, 1940; M.D., 1947; Ph.D., 1952

Philip Duffy. *Professor of Neuropathology*

B.A., Columbia, 1943; M.D., 1947

Vincent J. Freda. *Assistant Professor of Clinical Obstetrics and Gynecology*

B.A., Columbia, 1948; M.D., New York University, 1952

S. Raymond Gambino. *Professor of Pathology*

B.S., Antioch, 1948; M.D., Rochester, 1952

Lester M. Geller. *Assistant Professor of Neuropathology*

B.A., Cornell, 1947; M.A., Michigan State, 1948; Ph.D., New York University, 1953

Gabriel Godman. *Professor of Microbiology and Pathology*

B.A., New York University, 1941; M.D., 1944

Reba M. Goodman. *Assistant Professor of Pathology*

B.A., Indiana, 1949; Ph.D., Columbia, 1955

John G. Gorman. *Associate Clinical Professor of Pathology*

M.B., B.S., Melbourne, 1953

Liselotte Graf. *Assistant Professor of Pathology*

M.D., Vienna, 1937

Ross M. Grey. *Assistant Professor of Pathology*

D.V.M., Alabama Polytechnical Institute, 1945

Austin D. Johnston. *Associate Professor of Pathology (assigned to Orthopedic Surgery)*

B.A., Columbia, 1945; M.D., 1947

- Mavis Kaufman. *Associate Professor of Neuropathology (assigned to Psychiatry)*
M.D., New York Medical College, 1944
- Hans Kaunitz. *Clinical Professor of Pathology*
M.D., Vienna, 1930
- Gordon I. Kaye. *Assistant Professor of Surgical Pathology*
B.A., Columbia, 1955; M.A., 1957; Ph.D., 1961
- Nathan Lane. *Professor of Surgical Pathology*
B.A., Columbia, 1943; M.D., 1945.
- Raffaele Lattes. *Professor of Surgical Pathology*
M.D., Turin, 1933; Med.Sc.D., Columbia, 1946
- Edward A. Moscovici. *Assistant Professor of Pathology*
M.D., Madrid, 1956
- Takashi Okagaki. *Assistant Professor of Pathology (assigned to Obstetrics and Gynecology)*
B.S., Kyoto, 1953; M.D., Tokyo, 1957
- Elliott F. K. Osserman. *Professor of Pathology*
B.A., Columbia, 1945; M.D., 1947
- Karl H. Perzin. *Assistant Professor of Surgical Pathology*
B.A., Columbia, 1954, M.D., 1958
- William Pollack. *Assistant Clinical Professor of Pathology*
M.S., Rutgers, 1950; Ph.D., 1964
- Ralph M. Richart. *Associate Professor of Pathology (assigned to International Institute for Study of Human Reproduction)*
B.A., Johns Hopkins, 1954; M.D., Rochester, 1958
- Theophilus Roberts. *Associate Professor of Pathology*
M.D., Meharry, 1951
- Leon Roizin. *Professor of Neuropathology (assigned to Psychiatry)*
B.A., State Lyceum (Bessarabia), 1930; M.D., Royal University (Milan), 1936
- K. C. Shrivastava. *Assistant Professor of Pathology*
Ph.D., Wayne, 1965
- Herbert Stoerk. *Professor of Pathology*
M.D., Vienna, 1938
- Myron Tannenbaum. *Assistant Professor of Pathology (assigned to Urology)*
B.S., New York University, 1952; M.S., 1955; Ph.D., 1957; M.D., Chicago, 1961
- Virginia Tennyson. *Assistant Professor of Neuropathology*
B.S., Pennsylvania State, 1946; M.S., Baylor, 1956; Ph.D., Columbia, 1960
- Henry J. Vogel. *Professor of Microbiology*
B.S., London, 1939; M.S., New York University, 1941; Ph.D., 1949
- Bernard M. Wagner. *Professor of Pathology*
M.D., Hahnemann, 1949
- H. Joachim Wigger. *Assistant Professor of Pathology*
M.D., Hamburg, 1954
- Sigmund Wilens. *Professor of Pathology*
Ph.B., Yale, 1926, M.D., 1929
- Marianne Wolff. *Assistant Professor of Surgical Pathology*
B.A., Hunter, 1948; M.D., Columbia, 1952

PHARMACOLOGY

CHAIRMAN: Professor Brian F. Hoffman

Herbert J. Bartelstone. *Professor of Pharmacology*

B.S., College of the City of New York, 1942; D.D.S., Columbia, 1945; Ph.D., 1960

Arthur L. Bassett. *Assistant Professor of Pharmacology*

B.S., College of the City of New York, 1955; Ph.D., State University of New York, Downstate Medical Center, 1966

Marvin R. Blumenthal. *Adjunct Assistant Professor of Pharmacology*

B.S., Michigan, 1946; M.D., Columbia, 1949

Paul F. Craneheld. *Adjunct Associate Professor of Pharmacology*

Ph.B., Wisconsin, 1946; Ph.D., 1951; M.D., Albert Einstein, 1964

Lowell M. Greenbaum. *Associate Professor of Pharmacology*

B.S., College of the City of New York, 1949; Ph.D., Tufts, 1953

Brian F. Hoffman. *David Hosack Professor of Pharmacology*

B.A., Princeton, 1943; M.D., Long Island, 1947

Frederick G. Hofmann. *Professor of Pharmacology*

B.A., Michigan, 1943; Ph.D., Harvard, 1952

Norman Kahn. *Assistant Professor of Pharmacology*

B.A., Columbia, 1954; D.D.S., 1958; Ph.D., 1964

Howard Sachs. *Adjunct Professor of Pharmacology*

B.S., Brooklyn, 1949; M.A., Columbia, 1950; Ph.D., 1953

Wilbur H. Sawyer. *Professor of Pharmacology*

B.A., Harvard, 1942; M.D., 1945; Ph.D., 1950

Jurg A. Schneider. *Adjunct Associate Professor of Pharmacology*

M.D., Berne, 1945

Hsueh-Hwa Wang. *Assistant Professor of Pharmacology*

M.D., National Central University Medical School (China), 1946

Shih-Chun Wang. *Professor of Pharmacology*

B.S., Yenching, 1931; M.D., Peiping Union Medical College (China), 1935; Ph.D., Northwestern 1940

PHYSIOLOGY

CHAIRMAN: Professor John V. Taggart

Martin Blank. *Associate Professor of Physiology*

B.S., College of the City of New York, 1954; Ph.D., Columbia, 1957; Ph.D., Cambridge, 1959

John Britten. *Assistant Professor of Physiology*

B.S., Yale, 1954; M.D., Columbia, 1958

Shu Chien. *Professor of Physiology*

M.B., National Taiwan, 1954; Ph.D., Columbia, 1957

Louis J. Cizek. *Associate Professor of Physiology*

B.S., Fordham, 1937; M.D., Columbia, 1941

LeRoy L. Costantin. *Assistant Professor of Physiology*

B.A., Columbia, 1955; M.D., 1959

Robert J. Dellenback. *Assistant Professor of Physiology*

B.A., California (Los Angeles), 1950; M.A., 1953; Ph.D., 1955

Raimond Emmers. *Assistant Professor of Physiology*

B.A., East Texas Baptist, 1953; M.A., North Carolina, 1955; Ph.D., Syracuse, 1958

Arthur Karlin. *Associate Professor of Physiology (assigned to Neurology)*

B.A., Swarthmore, 1957; Ph.D., Rockefeller Institute, 1962

Werner R. Loewenstein. *Professor of Physiology*

B.A., Chile, 1945; D.M.D., 1950

Richard C. Mason. *Assistant Professor of Physiology*

B.A., Indiana, 1948; Ph.D., 1952

William L. Nastuk. *Professor of Physiology*

B.S., Rutgers, 1939; Ph.D., 1945

Mero Nocenti. *Associate Professor of Physiology*

B.A., West Virginia, 1951; M.S., 1952; Ph.D., Rutgers, 1955

David Schachter. *Professor of Physiology*

B.S., New York University, 1946; M.D., 1949

Sidney J. Socolar. *Assistant Professor of Physiology*

B.A., Johns Hopkins, 1943; M.A., 1944; Ph.D., 1945

John V. Taggart. *Professor of Physiology*

M.D., Southern California, 1940

Paul Witkovsky. *Assistant Professor of Physiology (assigned to Ophthalmology)*

B.A., California (Los Angeles), 1958; M.A., 1960; Ph.D., 1962

PSYCHIATRY

CHAIRMAN: Professor Lawrence C. Kolb

James P. Cattell. *Associate Clinical Professor of Psychiatry*

M.D., Harvard, 1942

Lawrence C. Kolb. *Professor of Psychiatry*

M.D., Johns Hopkins, 1934

Bernard Schoenberg. *Assistant Clinical Professor of Psychiatry*

M.D., Columbia, 1954

ASSOCIATES

Helen M. Anderson, M.D.

(Medicine)

Azak S. Eryol, M.D.

(Pathology)

Doris J. Mitchell, D.V.M.

(Pathology)

Elly Moshides, Ph.D.

(Pathology)

RESEARCH ASSOCIATES

F. J. M. Huijbregts, Tandarts

Solomon L. Katz, D.D.S.

Samuel M. Ross, B.E.E.

(Pharmacology)

Herbert F. Silvers, D.D.S.

INSTRUCTORS

Ernest W. April, Ph.D.

(Anatomy)

Henry Barnaby, Jr., D.D.S.

Earle R. Bassett, D.D.S.

INSTRUCTORS (continued)

Bernard H. Benkel, D.D.S.

Frederick Berlin, D.D.S.

Paul R. Bjorklund, D.D.S.

Abraham Blechman, D.D.S.

Philip L. Block, D.D.S.

Alfred J. Braida, D.D.S.

Belinda Bransilver, M.D.

(Pathology)

John E. Cinguina, D.D.S.

Barry C. Cooper, D.D.S.

Anthony L. DiMango, D.D.S.

John V. Donovan, D.D.S.

Neil B. Epstein, D.M.D.

Alfred Eriv, D.D.S.

Francis J. Faggella, D.D.S.

Louis Fink, M.D.

(Pathology)

John A. Flavia, D.D.S.

Edward Greenfield, D.D.S.

James B. Horn, D.D.S.

Robert J. Huettner, D.D.S.

INSTRUCTORS (*continued*)

Louis B. Jannetto, D.D.S.
 Neal L. Kaplan, D.D.S.
 Harijendra S. Khurana, D.D.S.
 Marvin B. King, D.D.S.
 George Kiriakopoulos, D.D.S.
 Burton Langer, D.M.D.
 Gustave Lasoff, D.D.S.
 Walter I. Lipow, D.D.S.
 Peter C. Lombardo, M.D.
 (*Dermatology*)
 Frank L. Mellana, D.D.S.
 Milton P. Merritt, D.D.S.
 Robert Miner, D.D.S.
 David M. Monahan, D.D.S.
 Ralph K. Neuhaus, D.D.S.
 Robert Pascal, M.D.
 (*Pathology*)
 Joseph A. Pianpiano, D.D.S.
 William Raebeck, Jr., D.D.S.
 Joseph M. Ragosta, D.D.S.
 Morton C. Rennert, D.D.S.
 Norbert Ripp, D.D.S.
 Paul P. Sher, M.D.
 (*Pathology*)
 Kenneth L. Siegel, D.D.S.
 Ronald N. Singerman, D.M.D.
 Alfonso Solimene, M.A.
 (*Anatomy*)
 Charles S. Solomon, D.D.S.

INSTRUCTORS (*continued*)

Marvin Solomon, D.D.S.
 Salvatore J. Squatrito, D.D.S.
 William Steibel, D.D.S.
 William H. Suskin, D.M.D.
 Joseph Tomasulo, M.D.
 (*Pathology*)
 Nicholas A. Vero
 George D. Wilner, M.D.
 (*Pathology*)
 David H. Wolmer, D.D.S.

ASSISTANTS

Jerome Bartwink, D.D.S.
 Martin J. Fields, D.D.S.
 Frank W. Pandolfo, D.D.S.
 Milton Potters, D.D.S.
 Irwin Steuer, D.D.S.

LECTURERS

Jerry L. Adelson, D.D.S.
 Theodore Adler, D.D.S.
 Lillian H. Bachman, D.D.S.
 James W. Benfield, D.D.S.
 Bernard S. Chaikin, D.M.D.
 Robert M. Cole, D.D.S.
 Robert L. Fisher, D.D.S.
 Harry A. Galton, D.D.S.
 Lawrence R. Gurin, D.D.S.
 Saul Misheloff, D.D.S.
 William H. Silverstein, D.D.S.

► PRESBYTERIAN HOSPITAL DENTAL SERVICE

DIRECTOR: Melvin L. Moss

CONSULTANTS: Bion R. East, Houghton Holliday, Carl R. Oman, Albin R. Seidel, Gilbert P. Smith

DIAGNOSTIC SERVICE: Edward V. Zegarelli, *attending dental surgeon*; Joseph A. Cuttita, *associate attending dental surgeon*; Jack Budowsky and Austin H. Kutscher, *assistant attending dental surgeons*

ORAL SURGERY SERVICE: Rudolph H. Friedrich, *attending dental surgeon*; Kourken A. Daglian and Boaz Shattan, *assistant attending dental surgeons*

PEDODONTIC SERVICE: Solomon N. Rosenstein, *attending dental surgeon*

RESTORATIVE DENTAL SERVICE: Sebastian A. Bruno, *associate attending dental surgeon*

Academic Calendar, 1970-1971

Sept	8-9	Tuesday-Wednesday. Registration, including payment of fees.
	14	Monday. Classes begin.
Nov	3	Tuesday. Election Day. Holiday.
	25	Wednesday. First trimester ends.
	26-28	Thursday-Saturday. Thanksgiving holidays.
	30	Monday. Second trimester begins.
Dec	20	Sunday, through January 3, 1971, Sunday. Christmas holidays.
Feb	22	Monday. Washington's Birthday. Holiday.
	27	Saturday. Second trimester ends.
Mar	1	Monday. Last day to apply or reapply for all degrees and certificates to be awarded in June. Later filing of application requires payment of a late fee. Third Trimester begins.
Apr	4-11	Sunday-Sunday. Spring holidays.
May	21	Friday. Third trimester ends for the first-, second-, and fourth-year classes.
	24-28	Monday-Friday. Final examinations.
	31	Monday. Memorial Day. Holiday.
June	1	Tuesday. Conferring of degrees and certificates. Beginning of Summer Clinic for the third-year class.
July	5	Monday. Independence Day holiday.
	30	Friday. Summer Clinic ends for the third-year class.



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1. BARD HALL
2. N.Y. STATE PSYCHIATRIC INSTITUTE
PSYCHOANALYTIC CLINIC
3. NEUROLOGICAL INSTITUTE OF NEW YORK
4. MAXWELL HALL
5. HARKNESS MEMORIAL HALL
6. DANA W. ATCHLEY PAVILION
7. GEORGIAN NURSES RESIDENCE
8. WILLIAM BLACK MEDICAL
RESEARCH BUILDING
9. ALUMNI AUDITORIUM
10. COLLEGE OF PHYSICIANS & SURGEONS
11. VANDERBILT CLINIC
12. DEPARTMENT OF HEALTH
SCHOOL OF DENTAL AND ORAL SURGERY
13. HARKNESS PAVILION
14. PRESBYTERIAN HOSPITAL
N.Y. ORTHOPEDIC HOSPITAL
SLOANE HOSPITAL
SQUIER UROLOGICAL CLINIC
15. BABIES HOSPITAL
16. RADIOTHERAPY CENTER
17. PAULINE A. HARTFORD MEMORIAL
CHAPEL
18. BABIES HOSPITAL RESEARCH,
TEACHING, AND OFFICE
ADDITION
19. INSTITUTE OF OPHTHALMOLOGY
ADDITION
20. INSTITUTE OF OPHTHALMOLOGY
21. CENTRAL SERVICE BUILDING
22. FRANCIS DELAFIELD HOSPITAL,
N.Y.C.

To Reach the Medical Center: By subway, the Washington Heights Express of the IND Eighth Avenue or the Van Cortland Park train of the IRT Seventh Avenue. By bus, Fifth Avenue Bus #4 or #5. By car, the Westside Highway exit at the George Washington Bridge. Parking facilities are available at West 164th Street and Fort Washington Avenue.

To Columbia Students

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CAUSE EXPENDITURES WHICH SHOULD
MORE DIRECTLY SERVE YOUR EDUCATION